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GEOLOGIC AND WELL CONSTRUCTION LOGS 102ND STREET LANDFILL REMEDIAL INVESTIGATION NIAGARA FALLS, NEW YORK

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GEOTRANS, INC.

209 Elden Street, Suite 301, Herndon, Virginia 22070 USA

(703) 435-4400



May 15, 1986

Mr. Kevin Lynch USEPA Region II 26 Federal Plaza New York, N.Y. 10278

Dear Kevin:

Enclosed are 4 copies of geologic logs that Earth Dimensions prepared for the following wells and borings:

| 0W-31 | 0W-41 | 0W-50 | MW-1 | MW-12 | MW-22 |
|----------------|----------------|----------------|----------------|----------------|-------|
| OW-32 OW-33 | 0W-42 0W-43 | OW-51 OW-52 | MW-2 MW-3 | MW-13 MW-14 | |
| 0W-33 | 0W-45 | OW-53 | MW-4 | MW-15 | • |
| OW-35 | OW-46 | OW-54 | MW-5 | MW-16 | |
| OW-36 | 0W-47 | 0W-55 | MW-6 | MW-17 | |
| 0W-37 | BH-47B | 0W-57 | MW-7 | MW-18 | |
| 0W-38 | BH-47C | 0W-58 | MW-9 | MW-19 | |
| 0W-39 0W-40 | 0W-48 0W-49 | | MW-10 MW-11 | MW-20 MW-21 | |

I recommend that the geologic data from these and older logs be input to the 102nd Street database system, and that the following maps be plotted: (1) NAPL observations; (2) waste/fill thickness; (3) thickness of Lake Tonawanda sediments (loamy deposits above the glaciolacustrine silty clay at the site's north end); (4) alluvium thickness; (5) thickness of glaciolacustrine silty clay (Lake Dana sediments); (6) thickness of glacial till; (7) site topography; (8) top of alluvium; (9) top of Lake Dana sediments; (10) top of glacial till; (11) top of Lake Dana-glacial till confining bed; and (12) top of bedrock. If you decide to enter the available geologic data to the database, these maps will be relatively inexpensive to produce. Alternatively, you may decide to wait for OCC/Olin to produce some or all of these maps.

Please call if you have any questions.

Sincerely,

Robert M. Cohen Hydrogeologist GEOLOGIC AND WELL CONSTRUCTION LOGS

102ND STREET LANDFILL REMEDIAL INVESTIGATION

NIAGARA FALLS, NEW YORK



DIMENSIONS,

Test Borings and Logs East Aurora, New York 14052 •

MOMITTORING WELL

PROJECT

1E85a

OW-32-85

102nd Street Landfill well installation LOCATION Along west boundary Buffalo Avenue, Niagara Falls, New York

GEOTRANS/EPA and DOJ DATE STARTED 10/21/85 COMPLETED 10/21/85 CLIENT

| | 14 | | | OWS AMPL | | | R | | | | ***** |
|-----------------------|--------------|--|--|-------------|--|------------|--------|---|---|----------------|--------------------------|
| рег тк feet | SAM | 6 | 6/1: | 12/ | 16/24 | N | R E | DESCRIPTION & CLASSIFICATION | WELL | WATER | TABLE & REMARKS |
| | | 3 | | | | | | Extremely moist dark gray silt | lo | | Soil fill to |
| | | | 5 | | 1 |],, | 12" | \setminus loam (SANDY-SILT) topsoil fill wit | tpe ement-benton | 4 | 2.1 feet ove |
| | | | | 6 | | 11 | | fine roots, (OL-ML) 0.2 | 1 读 | À | industrial f |
| | | | | | 12 | İ | | Extremely moist mixed pink and gra | Y 岸 | 2 | to 12.2 feet |
| | 2 | 0 | T | Ī | | | | (SILTY-CLAY) fill, stiff, (CL) 1.7 | + 외활 | 둭 | over origina |
| | 1 | 1 | 7 | İ | | | 10" | Extremely moist distinctly mottled brown very fine sand loam (SANDY- | ptpe Cemer | | silty topso. to 13.0 fee |
| | | Ť | İ | 1 3 | | 10 | | SILT) fill, compact, (ML) 1.9 | | - table | over water |
| | | i - | | | חנ | | | Moist dark brown silt loam (SANDY- | stee1 | | sorted and |
| | 2 | 18 | İ | İ | 1 | | | \SILT) fill, compact, (ML) 2.1 | , (| (1) | posited mos |
| 5 | + | $\frac{1-8}{1}$ | 5 | | | | 2" | Moist mostly black cinders with | black | 5.0 | very fine s |
| | | i | 1- | 1 4 | | 9 | | small' fibrous material, broken | E | 13.0 | with some s |
| | - | i - | | 4 | 1 | | | brick, slag and rounded gravel, | | İ | to end of |
| | - | 2 | <u> </u> | i | 3 | | | - loose - grades downward to 6.0 | ID | İ | boring. |
| | - | 13 | | - | ! | | 6" | | 2" | I | Noticed a f |
| | - | 1 | 1 | - | | 4 | | Extremely moist mostly black cin- ders with about 10% fibrous mater- | <u> </u> | 17.1 | harder frag |
| g. 17. T. | - | ! | 1 | <u> 3</u> | | | | ial in thin (1/8" layers), with | | Nac. | ments while |
| | <u>_</u> | | | <u> </u> | 3 | | | small<" broken brick, slag and | Secre | 1 | augering be |
| | 5 | 6 | <u>l</u> | <u> </u> | 1 1 | | 2" | glass fragments, very loose and | athl m (g) | ₽ | tween 0 and |
| | | <u> </u> | 1 4 | | | 6 | _ | - loose - grades downward to 2.0 | TEL | on l | foot depth. |
| | _ | <u> </u> | <u> </u> | 2 | | U | | grades downward to | est | 2 | |
| 1.0 | 1 | | | <u> </u> | ا ر | | | Wet mostly black cinders with | slotted stainless steel screen (super) | <u> </u> | Possible sl |
| | 6 | | | | | | 2" | about 10% fibrous above 10.0 feet, | 1 # 1 4 | | chemical od |
| | | 11/3 | 1 | | | | - | small glass and wood fragments | 69 | 8 | to sample 5 |
| | | | | 1 | | K l | | below 10.0 feet, very loose 12.2 | 900 | 12.1 | Augered to |
| | | | | |] | | | Wet black silt loam (CLAYEY-SILT) | * } | 3 | foot depth. |
| | 7 | 12 | | | | | | original topsoil, with some mod- | 1 | 175.7 | zoor acpan |
| | | i | 2 | | | | 13" | erate size roots (1/16"), soft | (7) | 1 | REC - Recov |
| | | i | | 3 | | 5 | | granular soil structure, (OL-ML) clear transition to $-\frac{12}{2}$. | (1) | 13.5 | |
| | ! | | | | 3 | | | to the creat transition to the | | 123.3 | Auger width |
| | 3 | 1, | | <u> </u> | - | | | Wat faintly mattled gray year, fine | i | | inches, ins |
| 11 | - | 1 - | - | | | | | Wet faintly mottled gray very fine sandy loam (SANDY-SILT), very loose | (2) | | diameter 82 |
| | | i | | , | | 2 | 10" | massive soil structure, (ML) | ĺ | | inches. |
| | | ! | 1 | 1 | 2 | | | • | | | (2) Bentoni |
| | - | 1 | | 1 | 2 | | | 16.0 | <u> </u> | DE.0 | pellet |
| | - | 1 | 1 | ļ | | | | Boring completed at 16.0 feet. | | | entonite pel |
| | <u> </u> | <u> </u> | <u> </u> | 1 | | | | Dolling Completed at 10.0 1eet. | i | sand pac | |
| | <u> </u> | <u> </u> | <u>!</u> | <u> </u> | | | | | Wate: | <u>r table</u> | at 13.6 fee |

2 " SPOON 12 " WITH 140 Ib. WT. FALLING 30 N = NUMBER OF BLOWS TO DRIVE 1



Test Borings and Logs

East Aurora, New York 14052 • (7

Rudininary.

MONITORING

WELL 00-31-85

PROJECT 102nd Street Landfill well installation LOCATION Northwest corner of OCC site

1E85a Buffalo Avenue, Niagara Falls, New York

CLIENT GEOTRANS/EPA and DOJ DATE STARTED 10/17/85 COMPLETED 10/18/85

| DEPTH | PLE | | BLOWS ON SAMPLER | | | | | | | | | | |
|-------|-----|-----------------|---------------------|----------|-------|------|------|--|-----------------------------|-------------------------------|--|--|--|
| feet | SAM | "/ ₆ | 6/12 | 12/16 | 10/24 | N | REC | DESCRIPTION & CLASSIFICATION | WELL | WATER TABLE & REMARKS | | | |
| | 1 | 4 | | Γ | | | 9" | Extremely moist black silt loam | | | | | |
| | | | 8 | | | 20 | • | (CLAYEY-SILT) topsoil fill with | 1 | Soil fill to (| | | |
| | | | | 12 | | 20 | | fine root fiber, (OL-ML) 0.5 | 2/1 | feet over flya | | | |
| ļ | | | <u> </u> | | 14 | | | Moist reddish brown gravelly silty clay loam (CLAYEY-SILT) fill with | 2011 2011 | and industrial fill to 11.0 f | | | |
| | 2 | 13 | | | | | | 15 to 40% gravel, very stiff, (CL- | 67 | over original | | | |
| | | | 14 | <u> </u> | | 24 | 5" | ML) 2.0 | steel | B.0 topsoil to 11. | | | |
| | | | | 10 | | 24 | ر | Moist gray flyash, coarse silt to | , . | feet over silt | | | |
| | | | | <u> </u> | 6 | | | \sim very fine sand size, compact $_{3.5}$ | ack | lake sediment | | | |
| | 3 | 5 | | İ | | | | clear transition to | 1 2 2 | | | | |
| 5 | | | 5 | | | | 8" | Extremely moist mixed gray, brown and black flyash and occasional | _1 | coarse silty l | | | |
| 1 | | | | 4 | | 9 | | wood fragment, fine silt to gravel | 2"] | of boring. | | | |
| | | | | | 4 | | | size, loose 6.0 | 2 | K.1 | | | |
| ļ | اء | 3 | | | | | | clear transition to | BX. | Augered only t | | | |
| Ĺ | | | 3 | | | | 3" | Extremely moist black either in- | creen 1 pack | 12.0 foot dept | | | |
| | | | | 2 | | _5 | | cinerated garbage or tar like sub- | 10 Sign | | | | |
| | | | | | 7 | | | stance with fiberous fragments, loose | tted el sci sand | (1) Cement- bentonite | | | |
| Ĺ | E | ٦ | | | | | 6" | \sim grades downward to $\frac{8.0}{}$ | lotted teel s id sand | grout. | | | |
| Ĺ | | j | 1/ | 2" | | ובעו | 2 | | s s | 3-0-0. | | | |
| , , | | | | | | | | Extremely moist to 10.0 feet, wet below 10.0 feet olive brown fib- | 16, ess b1 | (2) Bentonite | | | |
| 70 | | | | | ٦ |] | | rous filter cake, very soft 11.0 | | pellets. | | | |
| 1 | 6 | ן רַ | | | | | 13" | Wet black silt loam (CLAYEY-SILT) | 2 a 2 | 770 7 | | | |
| | | ŀ |] /2 | الم | | | , | original topsoil, very soft, or- | Super stain Specia | REC-Recovery | | | |
| | | | ند / | | | -7- | ٤ [| ganic rich with fine root fiber, | | 11.5 Auger width 14 | | | |
| L | | | | | 7 | | 1 | (OL-ML) 11.5 | | | | | |
| | 7 | ١ | | | | | 13" | Extremely moist dark gray silt | e te | diameter 8½ | | | |
| L | - [| | 3 | | | | ا قط | loam (CLAYEY-SILT) very soft with thin 4 inch thick black interbeds, | et. | inches. | | | |
| | | | | 3 | | 6 | 1 | with black root channels, very | int II | • | | | |
| | | | | | 3 | | | \sof+ (ML) | Bentonite pellets | 14.0 | | | |
| | . | | | | | | / | clear transition to | | | | | |
| 15 | | | | | | | | Extremely moist distinctly mottled | No wa | ter measurement at | | | |
| | - | | | | | | | gray silt loam (SANDY-SILT), loose, | comple | etion late 10/17/85 | | | |
| | | | | | | | | / with very thin (t1/16) very line | NO War | ter prior to instal | | | |
| | | | | | | | | \sanc lenses, (ML) 14.0 | well. | 10/18/85. | | | |
| Ī | | 1 | | ı | | | | Boring completed at 14.0 feet. | | 000398 | | | |



Test Borings and Logs East Aurora, New York 14052 • (

Ridemenary.

MOVITORING

WEILL 0W-33-85

PROJECT 102nd Street Landfill well installation LOCATION Near southwest corner of site 1E85a Buffalo Avenue, Niagara Falls, New York

CLIENT GEOTRANS/EPA and DOJ DATE STARTED 10/23/85 COMPLETED 10/23/85

| | | ī | Ru | ows | ON | | ī | | [| | |
|-------|--------|--------------|---------|------------|--|----------|-------------|---|-------------------------------|------------|-------------------------------|
| DEPTH | SAMPLE | 17/5 | | AMPL | ER In | N | R E | DESCRIPTION & CLASSIFICATION | WELL | WATER | TABLE & REMARKS |
| feet | | 2 | 71: | | / 24 | | <u> </u> | Extremely moist dark gray silt | 0 | | Mostly soil |
| | - | | 3 | 10 | | 113 | 13" | loam (CLAYEY-SILT) topsoil fill with fine size roots, (ML), soft | teel pipe t bentonite | | fill to 1.5 feet over in- |
| | - | | | 111/ | | - | | 0.5 | le pi | | dustrial fill |
| | 12 | 17 | | | | | | Extremely moist dark gray gravelly silt loam (CLAYEY-SILT) fill with | steel int ber | Anc Tal | to 11.0 feet over coarse |
| | | | 14 | | | | | 1 15 to 25% mostly rounded gravel, | st | Д Б | silty alluvial |
| | | | | 9 | <u> </u> | 23 | 21" | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ | ack s | | sediment to en |
| | _ | | · | - | 18 | _ | | (ML) 1.5 Moist mixed black cinders or fly- | b1a | 3.9 | of boring. |
| 5 | | 12 | 11 | <u> </u> | | _ | 23" | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ | 1 ak1 | 4.9 | Augered only t |
| | | | <u></u> | 7 | | 18 | .23 ··· | and white fine to coarse sand | 2". | Ī | 12.2 foot dept |
| | | | | | 5 | | | | | 5.9 | No water at |
| | 6 | 3 | | <u> </u> | | | | silt size brime sludge, compact | S: 1 | salid pack | completion of |
| | | | 5 | 5 | | ו חנו | 10" | 2.5 Extremely moist dark gray coarse | les upe | 5 | sampling. |
| | _ | | | <u> 3</u> | | | | 1 to fine silt size flyash, compact | atn (S) | Sall | Removed boulde: |
| | Ε, | 4 | | | | | | grades downward to 4.8 | ed stainless creen (super) | 2 | during augering between 0-2.0 |
| | | | 3 | <u> </u> | | | 11" | Extremely moist mixed black and white fine sand to coarse silt | otted s | 210 | foot depth. |
| | | | | 4 | | 7 | | \ \size flyash and brime sludge, | 127 - | ٠. | Difficulty aug- |
| 10 | | | | | 3 | | | , compact clear transition to $-\frac{5.3}{2}$ | s lo | 31 | ering between 5.5 and 6.0 |
| | 6 | 2 | | | | | 12" | , extremely moist white fine sand to | #6 | 10.9 | foot depth. |
| | | | 2 | 3 | | 5 | ! | coarse silt size sand, brime sludge | 7 | 11.5 | |
| | | | | | 4 | | | Wet mixed and in layers black and | | | (1) Bentonite pellet seal |
| | 7 | HOW | | | | | | white fine sand to coarse silt | ite s | | - |
| | | | 3 | | | 8 | 7" | size flyash and brime sludge, | Benton1 pellets | | REC - Recovery |
| | | | | 5 | ! ! | 0 | , | \lambda \lambda \lambda \text{loam} \lambda \text{loam} | 3en Se J | | |
| | - | | · | 1 | 7 | | | (SANDY-SILT) with high component | | 114.0 | |
| 15 | - | | | | i i | | | of root fiber and organic material | HOW . | - Sampi | ler penetration |
| | | | | | | | | \ noticed partially decomposed wood \ (possibly tree limb at upper con- | 1 | - | t of hammer and |
| • | | | | | | | | \tact), (OL-ML) 14.0 | roás | • | |
| | | | | | <u> </u> | | | | | | n 14 inches, |
| | | | | | | | | Boring completed at 14.0 feet. | insi | | neter 8½ inches |



Test Borings and Logs East Aurora, New York 14052 • 17

MONITORING WELL

<u>0v-34-</u>85

PROJECT 102nd Street Landfill well installation LOCATION Adjacent to Niagara River Buffalo Avenue, Niagara Falls, NV 1E85a

DATE STARTED 10/24/85 COMPLETED 10/24/85 _GEOTRAMS/EPA _ and DOI CLIENT

| Extremely moist dark gray silty clay loam (CLAYEY-SILT) topsoil fill with 10% cinder fragments, very stiff, blocky soil structure, (CL-ML) 6" CL-ML 0.5 | DEPTH | AMPLE NO. | | | OWS AMPL | | | | DESCRIPTION & CLASSIFICATION | | WATER TABLE & REMARKS |
|--|----------|--------------|----------|----------|--|-------|----|--------|---|----------|-----------------------|
| clay loam (CLAYEY-SILT) topsoil fill with 10% cinder fragments, very stiff, blocky soil structure, (CL-ML) Moist reddish brown gravely silty clay loam (CLAYEY-SILT) fill with fill to 40% angular and subangular mostly dolomitic gravel, (trace sand), small (1/8" diameter) few fine to moderate size roots, few fine to moderate size roots, fill clay stiff, blocky soil structure, fill (CL-ML) clear transition to - feet own mixed and fill to 6. fill to 6 | feet | SAN | () () | | 1 / | 16/24 | N | REC | PESCAPHON & COSSINCATION | WELL | WATER TABLE & REMARKS |
| fill with 10% cinder fragments, very stiff, blocky soil structure, (CL-ML) | | Ŋ | 8 | | | | | | Extremely moist dark gray silty | | |
| fill with 10% cinder fragments, very stiff, blocky soil structure, (CL-ML) 0.5 Moist reddish brown gravely sitty clay loam (CLAYEY-SILT) fill with boulder (rule) broken brick fragments and one cinder fragment in diameter, is sand, small (1/8" diameter) 0.5 broken brick fragments and one cinder fragment in diameter, is broken brick fragments and one cinder fragment in diameter, is well in diameter, is sand, small (1/8" diameter) 0.5 condern in the cinder fragment in diameter, is sand, small (1/8" diameter) 0.5 condern in the cinder fragment in diameter, is sand, small (1/8" diameter) 0.5 condern in the cinder fragment in diameter, is sand, small (1/8" diameter) 0.5 condern in the cinder fragment in diameter, is sand, in the cinder fragment in diameter, is sand, small (1/8" diameter) 0.5 condern in the cinder fragment in diameter, is sand, in the cinder fragment in diameter, in diamet | | | | 12 | | | | 75" | | 1 12 | - |
| very stiff, blocky soil structure, (CL-ML) 2 2 Moist reddish brown gravely silty clay loam (CLAYEY-SILT) fill with 15 to 40% angular and subangular worstly dolonitic gravel, (trace sand), small (1/8" diameter) 5 2 7 7 8" 1 1 1 1 1 1 1 1 1 | | | | | 14 | | 26 | | | 1 1 | |
| Moist reddish brown gravely silty clay loam (CLAYEY-SILT) fill with 15 to 40% angular and subangular wery difficult with 2 sand), small (1/8" diameter) wery difficult wery stiff, blocky soil structure, 15 sand), small (1/8" diameter) with 2 on and 2.0 depth. | | | | | | | | 1 | | . | , |
| boulder (r very diffinance) 1 | | _ | _ | | | | | ĺ | \ | اي ا | |
| boulder (r very diffinance) 1 | | | | | | - | | ر | | 1 4 | l manaihler ham |
| broken brick fragments and one cinder fragments are one cinder fragments. In diameter, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, fill few fine to moderate size roots, fill few fine to moderate size roots, fill few fine to moderate size roots, fill few for the fill few fine to moderate size roots, fill few for the fi | | | | 4 | | | 11 | י י | l = = | | |
| broken brick fragments and one cinder fragments are one cinder fragments. In diameter, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, fill few fine to moderate size roots, fill few fine to moderate size roots, fill few fine to moderate size roots, fill few for the fill few fine to moderate size roots, fill few for the fi | | | | | +- | | | | ,, | ခွ | Very difficu |
| broken brick fragments and one cinder fragments are one cinder fragments. In diameter, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, few fine to moderate size roots, fill few fine to moderate size roots, fill few fine to moderate size roots, fill few fine to moderate size roots, fill few for the fill few fine to moderate size roots, fill few for the fi | | | | | <u> </u> | 6_ | | | | ו לא | augering beti |
| few fine to moderate size roots, [1] very stiff, blocky soil structure, [2] clear transition to | | 3 | 2 | | ! | | | | k 1 | × , | 1 0 0114 2.0 10 |
| few fine to moderate size roots, [1] very stiff, blocky soil structure, [2] feet over trial till feet over fill feet ove | ڻ | | | 3 | <u> </u> | ! | 7 | 9" | !' \ | S | <u>5.0</u> depth. |
| 1 | | | | | 4 | | · | | 1. [| [2] | |
| 11 | | | | | | 5 | | | | . 📋 | Mostly soil- |
| Extremely moist brownish gray 11 | | | 3 | | | | | | 1 (CL-ML) 2.0 | 1 1 | 1 |
| | | | | 11 | | | | 15" | | 1 7 | 17 D |
| layers ind fill to 6. Stiff (CL-ML) | | | | | 9 | | 20 | | , ,, | | Land IIII o |
| layers ind fill to 6. 17 | | | | | | 6 | | | | a at | mived and in |
| fill to 6. Extremely moist black flyash, (coarse silt to fine sand size, (compact grades downward to - 4.0 over soil Extremely moist mixed and in lay- ers reddish brown silty clay loam (CIAYEY-SILT) with 5 to 15% gravel and flyash (cinders) silt to fine (grave) size, about equal proportion, firm and loose 7 2 | | 5 | 2 | | i | | | | l'istiff (CL-ML) | st | lavers indus |
| ers reddish brown silty clay loam (CLAYEY-SILT) with 5 to 15% gravel and flyash (cinders) silt to tine (grave) size, about equal proportion, firm and loose 7 2 Extremely moist dark gray indust- rial fill, coarse silt to gravel size cinders, noticed bright yel- low crystals 1/8" in diameter, ers reddish brown silty clay loam fill to as 12.0 12.5 feet 12.5 silty allu 12.5 sediments end of bor *Spoon bouncing possible rubbe (1) Benton Pelle | | | - | 7 | | | | ייקן | $ \frac{1}{1} $ clear transition to $-\frac{3.0}{1}$ | Ge G | fill to 6.5 |
| ers reddish brown silty clay loam (CLAYEY-SILT) with 5 to 15% gravel and flyash (cinders) silt to tine (grave) size, about equal proportion, firm and loose 7 2 Extremely moist dark gray indust- rial fill, coarse silt to gravel size cinders, noticed bright yel- low crystals 1/8" in diameter, ers reddish brown silty clay loam fill to as 12.0 12.5 feet 12.5 sediments end of bor *Spoon bouncing possible rubbe (1) Benton Pelle | | | | <u> </u> | 12 | | 6 | | Extremely moist black flyash, | en de la | over industr |
| ers reddish brown silty clay loam (CLAYEY-SILT) with 5 to 15% gravel and flyash (cinders) silt to tine (grave) size, about equal proportion, firm and loose 7 2 Extremely moist dark gray indust- rial fill, coarse silt to gravel size cinders, noticed bright yel- low crystals 1/8" in diameter, ers reddish brown silty clay loam fill to as 12.0 12.5 feet 12.5 silty allu 12.5 sediments end of bor *Spoon bouncing possible rubbe (1) Benton Pelle | 7.0 | | | _ | 1 | | | | 1 rooarse silt to fine sand size, | 10111 | fill to 9.5 |
| ers reddish brown silty clay loam (CLAYEY-SILT) with 5 to 15% gravel and flyash (cinders) silt to tine (grave) size, about equal proportion, firm and loose 7 2 Extremely moist dark gray indust- rial fill, coarse silt to gravel size cinders, noticed bright yel- low crystals 1/8" in diameter, ers reddish brown silty clay loam fill to as 12.0 12.5 feet 12.5 silty allu 12.5 sediments end of bor *Spoon bouncing possible rubbe (1) Benton Pelle | ا السيسي | | | | ! | 4 | | | II QIAQES QOWNWAITO TO | ee a | over soil fi |
| (CLAYEY-SHIT) with 5 to 15% gravel, c of land flyash (cinders) silt to time 12.0 12.5 feet 12.0 12.5 feet 12.0 silty allusters, about equal proportition, firm and loose 12.5 sediments | | -6 | 3 | | - | 1 | | | Extremely moist mixed and in lav- | l st | to 9.7 feet |
| (CLAYEY-SHIT) with 5 to 15% gravel, c of land flyash (cinders) silt to time 12.0 12.5 feet 12.0 12.5 feet 12.0 silty allusters, about equal proportition, firm and loose 12.5 sediments | | | | 4 | - | | 12 | | ers reddish brown silty clay loam | on S | over industr |
| fand flyash (cinders) sift to fine 12.0 12.5 rect (grave) size, about equal propor- 12.5 silty allustion, firm and loose 6.5 7 2 | | | | | 8* | | | | (CLAYEY-SILT) with 5 to 15% grave: | | 1 |
| tion, firm and loose 7 2 Extremely moist dark gray indust- rial fill, coarse silt to gravel size cinoers, noticed bright vel- low crystals 1/8" in diameter, 12.5 sediments end of bor *Spoon bouncing possible rubbe (1) Benton Pelle | ļ | | | | | | | | and flyash (cinders) silt to time | # | 112 · U |
| end of bor Extremely moist dark gray indust- rial fill, coarse silt to gravel | | | | | | | | | | | 11 / 5 |
| 2 | | | | | | | | | | | 1 |
| rial fill, coarse silt to gravel possible rubbe size cinques, noticed bright yel— (1) Benton low crystals 1/8" in diameter, | | 7 | 2 | | | | | | clear transition to | | 1 |
| size cingers, noticed bright yel- low crystals 1/8" in diameter, Pelle | | | | 2 | | | _ | 24" | , | | *Spoon bouncing of |
| | | | | | 3 | | 5 | | | <u>e</u> | (1) Bentonit |
| | 15 | | | | <u> </u> | 3 | | | | S | Pellets |
| See next sheet (2) Cement penton grout | | | | | | | | | compact | | } |
| See next sheet See next sheet See perconditions See percond | | | | - | i | | | | | ite | (2) Cement- |
| See next sheet grout | | | | | | | | | | (C) | bentonit |
| L See next sneet g | | ! i | | | | ! | | | Con mout about | nt | grout. |
| | ļ | | | | - | | | | See next sneet | & | |

000400N = NUMBER OF BLOWS TO DRIVE _____ 2 " SPOON ___ 12 " WITH ___ 140 ID. WT. FALLING 30 _ " PER BLOW.

lA



Test Borings and Logs

East Aurora, New York 14052 •

| MONITORING | WEILL |
|------------|-------|
|------------|-------|

OW-34-85 continued

102nd Street Landfill well installation LOCATION Adjacent to Niagara River PROJECT

Buffalo Avenue, Niagara Falls, NY 1E85a

DATE STARTED 10/24/85 COMPLETED 10/24/85 GEOTRANS/EPA and DOJ CLIENT

| 0.507.1 | E . | BLOWS ON SAMPLER | | | DESCRIPTION & CLASSIFICATION | | WATER TABLE & REMARKS | | |
|---------|-----|---------------------|----------|--|------------------------------|--|--|------------|--|
| DEPTH | X Z | "/ ₆ | 1: | 12/ | | N | DESCRIPTION & CONSTITUTION | WELL | WATER TABLE & REMARKS |
| | | 1 | - | | | | Extremely moist dark gray cinders, | | |
| | | | | | | | coarse silt to gravel size, compact, with two (2) slightly decomposed wood chips $(1"x \nmid " x \perp / 8")$ $$ clear transition to $\frac{8\cdot 0}{2}$ | | Augered to 13.0 feet. |
| - | | | | | | | Extremely moist black cinders, coars silt to gravel size, loose 9.5 | e | |
| 5 | | | | | | | Extremely moist grayish pink silty clay loam (CLAYEY-SILT) fill, stiff, CLAYEY clear transition to 2.7 | of 1 | Did not observe |
| | | | | | | | //Extremely Noist Black Cinders, today /// silt to gravel size, loose /// silt to gravel size, loose /// Extremely moist dark gray silty | sheet 1 | securing sample between 10.0 ar 12.0 foot depth Attempted to se |
| | | | | | | | // /clay loam (CLAYEY-SILT), few very // fine brown organic fiber oriented // horizontally, stiff, (CL-ML) | Refer to s | sample at 12.0 foot depth, spl spoon rebounded as if hitting |
| 10 | | | | | | | <pre>//</pre> | | rubber. Recommagering 1.0 for and resampling. |
| | | | | | | | / , brown organic fiber oriented hori- / zontally, with one very fine sand / lens (1/8" thick) in center of | | |
| | | | | | | | horizon, (ML) horizon, (ML) horizon, (ML) horizon, (ML) label{logical} la | | |
| 1 | | | | | | | // material readily liquifies when dis- turbed (ML) 15.0 | | 15.0 |
| | | | | | | | | | |
| 15 | | | <u> </u> | <u> </u> . | | | Boring completed at 15.0 feet. | | r width 14 inches, de diameter 8½ inc |
| | | | | | İ | | | | 000401 |



Test Borings and Logs East Aurora, New York 14052 • (716) Predimenary Copy

MONITORING WELL OW-35-85

PROJECT 1:02nd Street Landfill well installation LOCATION Near rivers edge western half of 1E85a Buffalo Avenue, Niagara Falls, NY site

CLIENT GEOTRAMS /FPA and DOI DATE STARTED 10/28/85 COMPLETED 10/29/85

| DEPTH | 14 | | | OWS AMPL | | |] | DESCRIPTION & CLASSIFICATION | | | NATED. | TABLE & REMARKS |
|----------|----------------|----------------|------|--|----------|------|-----|--|------------------|--------------|----------------|------------------|
| feet | SAMPLE NO. | 1/6 | 6/12 | 112/ | 17/24 | N | REC | DESCRIPTION & CLASSIFICATION | WEI | т. | MAIER | IABLE & REMARK |
| 1661 | | | / | ľ | | | 1 | Moist mixed dark brown (SANDY-SILT) | ''= | - | ┼── | |
| | - | 4_ | | | | | | and reddish brown (SILTY-CLAY)fill | | | İ | Soil fill |
| | | | 10 | | | 20 | T0. | | | 1 | 1 | 0.5 feet or |
| | | | | 10 | | | | (ML and CL) 0.5 | 4 | İ | ļ | |
| | ĺ | | | 1 : | 10 | | | Moist black flyash, coarse silt to | | | | industrial |
| | 2 | ۵ | | | | | | fine sand size, compact 0.8 | 3 6 | (1) | - | to 0.8 fee |
| | - | 4 | | | 1 | | | Moist mixed dark brown (SANDY-SILT) | plpe | | 2.5 | |
| | ├ ── | | 5 | <u> </u> | | 10 | 14" | l 1 | | | 1 | to 1.0 fee |
| | | | | 5 | | | | compact and very stiff (ML and CL)1.0 | teel | | 1 | over indus |
| | | | | | 4 | | | , Moist black flyash, coarse silt to | 0 | (2) | | fill to 12 |
| | 2 | _ | | | | | | fine sand size, few broken brick | st | | 4.5 | feet over |
| ٦ | | - | 6 | | | | 1 | fragments, compact 2.0 | i × | | 1 | organic la |
| <u> </u> | | | 2 | | | 12 . | 16" | orades downward to | ack | 1 | | to 12.5 fe |
| | | | | 6 | | | | ! Extremely moist black flyash, coarse | 1 1 | | | over silty |
| | | | | | 5 | | | silt to fine sand size, loose | a a | | İ | alluvial s |
| | 4 | 3 | | | | | | clear transition to | į. | | 1 | ment to 13 |
| | | | ٦. | | | _ | 10" | Moist dark reddish brown tar like | 2 | 1 | 1 | feet over |
| | | | | 7 | | 6. | | industrial fill that appears to be | | l | 7 5 | coarse sil |
| | | | | | 3 | | | Tubbery with equal size interlayers | | \ <u>\</u> | | alluvial s |
| • | | | | | 3 | | | Wof thinly bedded sand size cinders, | atn | pack | | ment to en |
| | 5 | 3 | | | | | | //compact 6.0 | ta l | ۵ | | of boring. |
| | | | 4 | | | | 16" | Extremely moist dark gray flyash | d s en | sand | } | • |
| | | | | F. | } | 10 | | longroup cilt to fine cand cize longe | וחוח צ | Sa | Ì | Difficulty |
| i | | | | | 6 | | | with few broken brick fragments 6.5 | S CENT | ł | | augering b |
| 10 | | | | | 0 | | | with few broken brick fragments 6.5 Extremely moist mixed black and red- | 10 g | blend | } | tween 6.0 |
| | 6 | 6 | | | 1 | | | dish brown cinders, coarse silt to | 1 B ~ | | ļ | 8.0 |
| | | ļ | 7 | | | | | fine gravel size with wood fragments | tee. | | } | foot depth |
| | | | | 4 | <u> </u> | 11 | 2" | Whether 7 5 and 8 0 foot depth | ຼິ່ນ | | 1 | |
| | | | | | 3 | | | 1/10ose8.0 | ပြည် တို့ | Ö | Ī | Noticed in |
| 1 | _ | | | | | | | I Extremely moist black flyach coarse | le la | Ę, | | cent sheen |
| | -7- | -2- | | | - ! | | | between 7.5 and 8.0 foot depth, 100se 8.0 Extremely moist black flyash, coarse silt to fine sand size, with wood | | ! | 1-2-5 | liquid on |
| | | | 2 | | | 5 | Ì | chine loose | | | <u>113.0</u> | ple #6 |
| | | | | 3 | | ر | Į | 0.7 | } | | | D10 #0 |
| İ | | | | | 5 | | | 1 clear transition to | (| 2) | 14.0 | |
| İ | | | | | Ī | | ł | Extremely moist black in alternating | | | <u>نامة با</u> | |
| ואָר | | | | | - | | 1 | layers of tar like industrial fill | Aua | ered | to] | 3.7 feet. |
| <u> </u> | | | | | | | - 1 | with loose interlayers of cinders | - | | | |
| | | - | | | ! | | 1 | mostly sand size with wood chips, | RFY | -Rec | over | 7 |
| į | | | | | | | ļ | about 3 inches thick 9.5 | | | | |
| | 1 | | | i | | | ļ | | | (1) | Comor | nt-bentonite |
| | | i | | I | | | 1 | Description continue on sheet 1A of | 1 | | grout | |
| i | | - | | | | | | • | ı | | | onite pellet |
| | 1 | ! | | | | | | <u>1</u> A | L | 14/ | 151117 | with hersel |

N = NUMBER OF BLOWS TO DRIVE ____ " SPOON ___ 12 " WITH __ 140 __ Ib. WT. FALLING ___ 30 __ " PER BLOW.



Test Borings and Logs East Aurora, New York 14052 • (7 Predimenary

MONITORING

| WELL | OW-35-85 | continued |
|------|----------|-----------|
|------|----------|-----------|

PROJECT 102nd Street Landfill well installation LOCATION Near rivers edge western half of 1E85a Buffalo Avenue, Niagara Falls, NY site

CLIENT GENTRANS/EPA and DOT DATE STARTED 10/28/85 COMPLETED 10/29/85

| | <u>ال</u> ا | | | OWS AMPL | | | | DESCRIPTION & CLASSIFICATION | WATER TABLE & REMARKS |
|---------------|-------------|-------------|----------|--|--|---|--------|--|---|
| DEPTH feet | SA. | 76 | 6/12 | | 10/24 | N | | DESCRIPTION & CLASSIFICATION | WATER TAPLE & REMARKS |
| | | | _ | | <u> </u> | | | | |
| | - | <u> </u> | | 1 | | | | Moist white resin like industrial | Minimal recovery to |
| | - | | <u> </u> | | | | | waste, massive 10.0 | sample #6 (2"), resamp between 10.5 and 12.5 |
| | | İ | - | | | | | Wet black silt to very fine sand | foot depth. |
| | | | | | | | | size flyash with wood chips, | • |
| | | ļ | | | | |] | compact $\frac{10.5}{1}$ grades downward to - $\frac{10.5}{1}$ | |
| | | | | | | | / | grades downward to | • |
| | <u> </u> | | | <u> </u> | | | | Wet black fine sand to angular | |
| 5 | <u> </u> | <u> </u> | <u> </u> | | | | l /. | gravel size industrial waste, | |
| | | | | 1 | <u> </u> | | // | 12.0 | |
| | | <u> </u> | | 1 | - | | [] | /Wet black muck, mostly decomposed | |
| | - | _ | | | | | 1. | $\frac{12.5}{\text{pood fiber, (PT)}}$ | |
| | | | | | | | i | Extremely moist black silt loam | |
| | | | | | | | | (CLAYEY-SILT) with fine organic | |
| | | | | | | | 11:77 | fiber, soft, (OL-ML) 13.0 | |
| | | | | | | | /i / | / clear transition to | |
| 3.0 | | _ | | 1 | 1 | | / // . | 'Extremely moist black silt loam | |
| 3.0 | 1 | | | | <u> </u> | | | (SANDY-SILT) with fine organic | |
| | | | | | | | | fiber, very loose, (OL-ML) | |
| | | | | _ | | | // / | / | |
| | | | | | | | 11/1 | , | |
| | | | | | | | // / | Boring completed at 14.0 feet. | Auger width 14 inches, inside diameter 8½ inch |
| | | | | | | | i / | | Tipide diameter of Tici |
| | | | | | | | | | |
| | | | | | | | / | | |
| 15 | | | | | | | ٠ | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | i | - | | | | |
| | | | | | | | | | • |
| | | | | | | | | | |



Test Borings and Logs East Aurora, New York 14052 • (

Indimenary.

MONITORING

WEILL 0W-36-85

| | | | | 1 1 |
|---------|---|----------|--------------------|-----|
| PROJECT | 102nd Street Landfill well installation | LOCATION | Near Niagara River | |
| 1E85b | Buffalo Avenue, Niagara Falls, NY | • | | |

DATE STARTED 10/29/85 COMPLETED10/30/85 GEOTRANS/EPA and DOJ CLIENT BLOWS ON SAMPLER SAMPI HARD DESCRIPTION & CLASSIFICATION WATER TABLE & REMARKS 112 / Lin N REC WELL Moist dark brown (SANDY-SILT) top-Soil fill to 2.(soil with fine to coarse roots 7 feet over alter-(2) nating layered 17" Moist dark brown (CLAYEY-SILT) industrial fillfill, stiff, with few fine roots, soil fill to 4.0 black (CL-ML) feet over indus-61 Moist dark gray very fine sandy trial fill to 116" 5 loam (SILTY-SAND) fill, compact, 11.0 feet over 10 4 (SM-ML) silty alluviun Moist in alternating layers thinly to end of boring. 3 477 bedded flyash, coarse silt to fine **IWOR** sand size and reddish brown (SILTY Slight oily ap-WOR CLAY) fill, 1/3 soil - 2/3 fill pearance to WOR with two separate soil fill layers a liquid to upper noticed equal proportion of white | part of sample 2" sand and gravel size material in 5 (10.0-11.0 foot HOW lowest laver 4.0 sand depth). Diffiscreen mer slotted culty augering between 0-2.0, Extremely moist white, gray, and لتحييا 3.5 to 4.0 foot black industrial waste, coarse WOH silt to gravel size, very loose depths. **FWOH** surer - - - - grades downward to - - -Encountered very 3.0 | Wet black cinder, industrial loose fill be-5 1 waste, silt to gravel size, very 116" tween 4.0 and 10.5 l∞se ${\cal P}$ 9.5 foot depths, 3 Wet dark gray flyash, coarse silt 121 111.5 weight of rod to fine sand size, very loose 11.0 12.0 (WOR) arop be-Extremely moist black silt loam tween 4.0-6.0 foot depths, (CLAYEY-SILT), very soft, with weight of hammer (WOH) very fine weathered brown organic drop between 6.5 and 9.5 fiber and very fine roots, (OL-ML) 12.0 foot depths, no unusual appearance. REC-Recovery Boring completed at 12.0 feet. Water table at 11.5 feet below surface at completic: Auger width 14 inches, inside diameter 8½ inches. (1) Bentonite pellets. (2) Cement bentonite grout



Test Borings and Logs East Aurora, New York 14052 • Redinancey Copy

MONITORING WELL

Ow-37-85

| PROJECT | 102nd Street Landfill well installation | LOCATION | Near river |
|---------|---|----------|------------|
| 1E85a | Buffalo Avenue, Niagara Falls, NY | | |

CLIENT GEOTRANS/FIPA and DOJ DATE STARTED 10/31/85 COMPLETED 10/31/85

| | 2. | | | OWS | | | | | | | | |
|---------------|--------------|--------------|------|--|--------------|-------------|-----|---|---------|----------|----------|---------------------------------------|
| DEPTH feet | SAM | 1/6 | 6/12 | 12/ | 15/24 | N | Brl | DESCRIPTION & CLASSIFICATION | WEIL | T | WATE | R TABLE & REMARKS |
| 1 001 | 1 | Е | _ | Ť | / | \vdash | 1 | | VX | | | · · · · · · · · · · · · · · · · · · · |
| | | - | 4 | + | İ | † | 1 | Moist dark gray mixed mostly silt | 8 | 1 | | Mostly soil : |
| | | | - | 16 | i | 10 | 12" | loam (SANDY-SILT) fill, (ML) with 5 | p | (2) | | to 2.0 feet |
| | | | | +5 | | - | } | to 15% gravel and about 20% flyash, | - | [`-' | | industrial f |
| | | | | +- | 7 | | } | coarse silt to fine sand size, with | tee | - | 2.0 | with wood fr |
| | 2 | Q | | <u> </u> | <u> -</u> | 1 | | few fine roots, loose 2.0 | st to | |) | ments to 10. |
| | | <u> </u> | 3 | | | 27 | 19" | Moist black cinders and flyash, silt | 상 | t(工) | 3.2 | feet (note o |
| | <u> </u> | | | 24 | | 12' | ļ | to coarse sand size, loose to 3.0 | TO. | — | | ment below) |
| | | | | | 63 | | | feet, very dense below, with slag | b1 | | • | silty alluvi |
| | ٦ | 7 = | | | | | | fragments, gravel size | ID | } | Ì | sediment to |
| 5 | | | 38 | Ī | | | 17" | J , J | = | 1 | 5.0 | feet over co silty alluvi |
| | | | | 16 | | 54 | - | 5.5 | 12 | 1 | 2.0 | sediment to |
| | | | - | 1 | 10 | | | grades downward to | stain | ļ | | of boring. |
| | _ | 77 | | † | 1 | | | Wet mostly black and mixed with | st | pack | | |
| | | _ | 15 | | | | 18 | white mostly silt to coarse gravel | otted s | į š | | Suspect no r |
| | | | 72 | 1 | | 61 | | size cinders and flyash, compact 7.5 | tt | ק ו | | covery to bo |
| | | | | 146 | 1 | | | Light brown and reddish brown wood- | 00 | sand | | tom half (9. |
| | | | | | 19 | | } | \ 2 distinct different tree limbs with | [S] | 4 | | 10.0 f∞t <u>d</u> e |
| | Ξ. | 10 | | <u> </u> | <u> </u> | | | bark 7.8 | 5.0 | blend | | of sample #5 |
| | | | ٦ 5 | <u> </u> | | 16 | 12" | Moist dark gray cinder and flyash, | | | | _ |
| | | , | | 1 | | 10 | | \\sand and gravel size 8.0 | Super | 5 | | Over augered |
| 10 | | | | | 1 | | | Wet mixed black and reddish brown | ા આ | 1a1 | 10.0 | 12.5 feet. |
| | _ | 2 | | | | | | fine wood fiber and very fine metal | | . D | | Auger width |
| | | | 3 | Ì | | | 20" | Welst framments donce in place & 5 | | Sp | | inches, insi |
| | | _ | | Δ | | 7 | 20" | Wet black industrial fill, coarse | | | 11 5 | diameter 8½ |
| | | | | <u> </u> | 4 | | | silt to very fine sand (possibly | | | <u> </u> | inches. |
| 1 | ! | | | | | | 1 | foundary sand), dense in place 8.8 | (1 | , | | |
| - | | ; | | - | | | | Wet black mixed cinders, deterio- | | / | 12.5 | <u></u> |
| } | | | | | | | | rated concrete, flyash, silt to | | . | | |
| <u> </u> | 1 | | | | | | - 1 | gravel size dense in place 10.0 | | | | prior to in- well. |
| } | | | | | | | - 1 | Extremely moist black silt loam | | Suci | .11119 | WEII. |
| | | | | | | | 1 | (CLAYEY-SILT), firm, with numerous | 3 | REC- | Reco | very |
| 15 | | | | | | | | Iffine organic fiber, with fine roots | 1 | No+i | ഘി പ | wood fiber; s |
| | | [| | . | | | | $\frac{1(ML)}{1}$ - grades downward to 11.0 | | | | ated sticks a |
| Ī | | | | | | | | Wet mixed black and dark gray silt | | | | ample #6 imme |
| Ī | İ | İ | | | | $\neg \neg$ | ļ | loam (SANDY-SILT), loose, with fine | | | | low 10 foot b |
| Ì | Ì | ij | | | | | | organic fiber mostly oriented flat | | dary | _ | |
| - | | - | | | | | | and horizontally, with very thin | | _ | | ., |
| | 1 | ! | | | | ! | | fine sand lenses, (ML) 12.0 | | (1) | Bent | onite pellets |

Boring completed at 12.0 feet.

(2) Cement-bentonite grout



Test Borings and Logs East Aurora, New York 14052 • (716) Dridemenary Copy

MONITORING

WELL

OW-38-85

PROJECT 102nd Street Landfill well installation LOCATION Near center of CCC site, should <u>be drainage ditch well</u> 1E85a <u>Buffalo Avenue</u>, Niagara Falls, NY

DATE STARTED 11/1/85 COMPLETED 11/6/85 GEO TRANS/EPA and DOJ CLIENT

| | ٣ | | | OWS | | | | | | | |
|-------------------|---------------|--------------|--|--|-------------|--|-----|---|--------------------------|-------------------|---------------------------|
| DEPTH feet | SAMPLE NO. | 1% | 1% | 112/ | 117/ | N | REC | DESCRIPTION & CLASSIFICATION | WELL | L | WATER TABLE & REMARKS |
| | 1 | | | | Ĺ | İ | | - | | | 0 |
| | | ļ | - | <u> </u> | +- | - | - | | | | Coarse loam |
| | | | 1 | 1 | - | - | - | | | ىد | 1 }-1 |
| | 2 | <u> </u> | 1 | - | + | | - | | | grout | 16.0 foot d |
| | | | +- | ! | 1 | - | | | 8 | (| 2 |
| | | | | | | | | | inch ID black steel pipo | Cement-bentonite | Noticed in |
| | | | | | | |] | | ge] | [con | cent green |
| _ | 2 | | <u> </u> | <u> </u> | <u> </u> | | | | ste | ken | liquid at to of sample to |
| 5 | | ! | 1 | 1 | 1 | | | (Not present during sampling | 성 | t-k | |
| | | <u> </u> | | <u> </u> | - | | - | between surface and 16.0 foot | bla | nen | (1) 5 |
| | ۷ | <u> </u> | | | - | + | | depths on November 1, 1985) | | Cel | (1) Bentoni 6 5 pellet |
| · | - | - | i i | - | | † | | | - E | | seal. |
| | | | | | | | | | l ch | (1) | 7.5 |
| | | | | | | | | | Two | | |
| | 5_ | <u> </u> | <u> </u> | 1 | <u> </u> | | | | | | |
| | | | | 1 | - | <u> </u> | | · | | | 9.0 |
| 3.0 | | | <u> </u> | <u> </u> | 1 | - | 1 | | stain- | | |
| 10 | ۲. | | <u> </u> | 1 | 1 | l İ | - | | sta | | |
| • | Ė | - | | | 1 | 1 | 1 | | otted | pack | |
| | | | j | | i | | | | slotted 1 screen | d F | |
| | | | | | | | | | I - 1 | sand | |
| | 7 | | | | | <u> </u> | | | #6 s steel | | |
| | | | | _ | | ļ |]] | | 1 2 1 | zła | 14.0 |
| | | | - | | - | | | | Super less | je | |
| į | | | | | | | | | 1007 | נט | 14.0 |
| <u>1</u> 5 | <u>.</u> | | | | | <u>!</u> | | • | | | 14.5 |
| | | | | | | | | Wet brown very fine sandy loam | | | |
| | | | | | | | | (SANDY-SILT), coarse silt and very | Bentonite | 3 | |
| į | o · | 2 | | | | | | fine sand, loose, with the coarser (the fine sand) lenses saturated | ton | υ - | 000406 |
| | | | 2 | <u> </u> | | 6 | 13" | with liquid, no organic matter ex- | le e | <u>)</u> | |
| | | | <u> </u> | 4 | <u></u> | 10 | | cept for brown wood fiber in spoor | | | Continued on sh |

trap-fine (1/16") stem-root size 1" long, '(ML)

2 "SPOON 12 "WITH 140 Ib. WT. FALLING 30 "PER BLOW. N = NUMBER OF BLOWS TO DRIVE



Test Borings and Logs East Aurora, New York 14052 •

Dalmenary

| MONITORI | NG |
|----------|----|
|----------|----|

| | WELL | OW-38-85 |
|--|------|----------|
|--|------|----------|

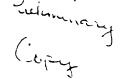
| PROJECT | 102nd Street Landfill well ins | stallation | LOCATION | Near | center | of | OCC site | , should |
|---------|--------------------------------|------------|----------|------|---------|-----|----------|----------|
| 1E85a | Buffalo Avenue, Niagara Falls, | NY | | be a | rainage | dit | ch well | |

CLIENT GEOTRANS/EPA and DOJ DATE STARTED 11/1/85 COMPLETED 11/6/85

| | ш | | |)WS | | | | | | | |
|----------------------|--------------|--------------|--------------|--|------|---|--|-----|---|-----------|-----------------------|
| DEPTH feet | SAMF | 1/ | 6/ | 12/In | 11-/ | N | REC | | DESCRIPTION & CLASSIFICATION | WELL | WATER TABLE & REMARKS |
| ICCL | 9 | <i>y</i> " | <u> </u> | 7 | 6 | | | - | Wet brown very fine sandy loam | | |
| | 10 | 2 | | 1 | | | 1 | | (SANDY-SILT), coarse silt and very | | |
| | | | 2 | | | | j | | fine sand, loose, with the coarser | | |
| | | | | 2 | | 4 | 13" | | (the fine sand) lenses saturated | ហុ | |
| 20 | | | | - | 2 | | 1 | | with liquid, no organic matter ex- | pellets | |
| <u> </u> | | | | <u></u> | | | | 1 | cept for brown wood fiber in spoon trap vine (1/16") stem-root size 1 | el el | |
| | | | | | | | j | 1, | long, (ML) 19.5 | | |
| | | | | | | | | 1 | Wet dark gray very fine sandy loam | ± te | į |
| | | | | | | | 1 | _ \ | (SANDY-SILT), very loose, mostly | n O | |
| | | | | | | | 1 |) | very fine sand and coarse silt, | 3entonite | |
| | | | | | | | | | (ML) 20.0 | <u> </u> | 20.0 |
| | | | • | | | | 1 | | Boring completed at 20.0 feet. | Water | table at 15.5 for |
| | | | | | | | | | 2012.9 04.410.00 40 2010 1000. | | surface at comple |
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Test Borings and Logs East Aurora, New York 14052 • (716) 655-1717



MONITORING

| WELL | <u>0w-39-85</u> | ; |
|------|-----------------|---|
| | | |

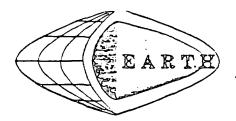
| SURF. EL | EV. | |
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| PROJECT 1E85a | | | | - | | | ll well installation LOCATION North congara Falls, New York 200 feet | | part of site, about of Love Canal ditch |
|------------------|-----|-----|-----|--------|-----|-----------------|---|--|---|
| CLIENT | GEX | TRA | NS/ | 'EPA | an | d DC | DATE STARTED 11/7 | 7/85 | COMPLETED 11/8/85 |
| DEPTH Seet | و ا | | | IFR In | N | REC | DESCRIPTION & CLASSIFICATION | WELL | WATER TABLE & REMARKS |
| 2 | W- | 10 | | 2 | 2 2 | 3" 6" 15" | Moist dark brown (SANDY-SILT) fill with brick and concrete fragments, compact, (ML) 1.5 Extremely moist white silt size sludge, very soft 2.7 Extremely moist distinctly mottled olive gray gravelly (SAND) fill with 30 to 40% mostly rounded gravel, mostly medium to coarse size sand 3.5 Moist reddish brown (SILTY-CLAY) fill, very soft, with interlayers of cinders and ash, (CL) 6.0 Wet gray cinders, fine sand to fine gravel size, very loose 6.5 Wet white silt size industrial sludge, very loose 8.5 Extremely moist black very fine sandy loam (SANDY-SILT), original topsoil with few very fine root fibers, very loose, (ML) 9.0 Wet grav very fine sandy loam (SANDY-SILT), very loose, very fine and fine size sand, little to some silt, (SM) 9.5 Moist distinctly mottled brown (SILTY-CLAY), firm, weakly lam- | Super #6 slotted stain- Two inch less steel screen black stee | driver while augering to 2.0 foot depth. 3.5 Mixed soil and nonsoil fill to 1.5 feet over industrial wast fill to 2.7 feet over sand and gravel fill to 3.5 feet ove mostly soil fil to 6.0 feet ove industrial wast |
| 15 | | | | | | | Boring completed at 10.0 feet. | 14 inc (1) Be | boring. Ed to 10.0 feet with thes OD, 8½" ID. Entonite pellets. Ement-bentonite seal. |
| | | | | | | | | WH-Sam | pler penetration with of hammer and scots. |

____ " SPOON _____ 12 " WITH ___ 140 ___ Ib. WT. FALLING

N = NUMBER OF BLOWS TO DRIVE

2



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MONITORING

| WEILL |
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OW-40-85

SURF. ELEV. _

PROJECT

102nd Street Landfill well installation LOCATION Near monitoring well OW-37-85

1E85a

Buffalo Avenue, Niagara Falls, NV

eastern edge of OXV site, use Niagara River. RTED <u>11/13/85</u> COMPLETED <u>11/15/85</u>

CLIENT GEOTRANS/EPA and DOJ DATE STARTED

| | 1 | | BLOWS | | T | | | T | | |
|---------------|--------------|-------|---------|--------------------------------|-----|------------|--|------------|------------------------|---|
| DEPTH feet | SAMFU NO. | 0/6/2 | 12 / 12 | 117/ | N R | EC | DESCRIPTION & CLASSIFICATION | WEIL | L | WATER TABLE & REMARKS |
| | | | | | | | See nearby monitoring well OW-37 85 for description of industrial wastes above 9.0 foot depth. | - 1 | ut | Top of origina alluvial sedi- ment may have extended a few inches above to 9.0 foot depth. |
| | | | | | | | Extremely moist black silt loam (CLAYEY-SILT) with fine roots oriented horizontally and vertically, soft grades downward to Extremely moist dark brown very fine sandy loam (SANDY-SILT), very loose, weak thinly bedded with thin fine and very fine light ta | k pipe | Cement-bentonite grout | Silty alluvial sediment to 10. feet over coars loamy (coarse silt and fine sand) alluvial sediment to 21. feet over water sorted and deposited mostly sand and gravel |
| 10 | 2 | 2 | 2 |] | | 15" 18" | sand lenses, with partically decayed organic fiber oriented hor izontally, (ML-SM) grades downward to / Wet olive gray very fine sandy loam (SANDY-SILT), loose, weak thinly bedded with thin fine and very fine sand lenses, mottling oriented along existing nearly vertical root channels, (ML-SM) | dameter bl | (1) | 8.0 to 28.5 feet over clayey la- sediments to er of boring. Inserted water into hollow ste augers to pre- vent plug insid augers prior to sampling #3 sam ple. |
| . 15 | | WR 2 | 3 | 3 | 5 | 19" 18" | Wet dark gray very fine sandy loam (SANDY-SILT), loose, weak thinly bedded, with thin dark gray and black fine and very fine sand lenses, few very fine shell fragments, noticed vertical root without mottling, (ML-SM) | 10, | tal blend sand pack | (1) Bentonite pellets. |
| | 5 | WR | | | |]3g | See next sheet. | | Special | Continued on sheet 2 |

___ " SPOON _____ " WITH _____ ID. WT. FALLING 30 " PER BLOW. N = NUMBER OF BLOWS TO DRIVE



DIMENSIONS, INC. Julumian

Test Borings and Logs East Aurora, New York 14052 • (716) 655-1717

WELL OW-40-85 continued SURF. ELEV.

PROJECT:

102nd Street Landfill well installation LOCATION Near monitoring well OW-37-85

1E85a

Ruffalo Avenue, Niagara Falls, New York

eastern edge of OXV site, near

TOT Fore ACE SMACHON

STARTER 11/13/85 COMPLETED 11/15/85

| ************************************** | PIE | | | OWS AMPL | | | REC | DESCRIPTION & CLASSIFICATION WELL WATER TABLE & REMA | ABYC |
|--|--------------|--|----------|--------------|----------|----------|-------|---|------|
| р ертн feet | SAM | U/6 | 6/12 | 12/ / 18 | 15/24 | N | Nuc | DESCRIPTION & CLASSIFICATION WATER TABLE & REMA | ARKS |
| | 5 | | WR | | | | 13" | hadad any | |
| | | <u> </u> | <u> </u> | 11 | <u> </u> | ₹2 | 1 | Added app mately 20 | _ |
| | <u>_</u> | ! | | | 4 | | 1 1 | Wet dark gray very fine sandy gallons of | |
| | 6 | WR | <u> </u> | | | <u> </u> | - | loam (SANDY-SILT) with black a water du | |
| 20 | ļ | <u> </u> | 2 | + | | 1 3 | 111" | lenses 1-2 inches thick, some silt, very loose, very few fine sampling | |
| | | <u> </u> | | 1 | | | | Wet dark gray very fine sandy loam (SANDY-SILT) with black lenses 1-2 inches thick, some silt, very loose, very few fine shell fragments, (ML-SM) gallons of water during drilling sampling sampling well inst | |
| | 7 | ! | - | - | 2 | | } | ation | |
| | 1 | 13 | <u> </u> | ┼ | | | 1 } | grades downward to | |
| | - | <u> </u> | 7_ | 10 | | 17 | [14"] | Wet gray gravelly (SAND) with 30 To 2' of low | |
| | | | | 144 | 12 | | 1 | wet gray graverry (SAND) with 30 | |
| | 6 | 12 | | i - | 1 | _ | | to 40% mostly rounded fine to medium size gravel, mostly medi- | |
| | - | | 4 | | | | | | |
| | | | | 5 | | 9 | 8" | between 24 and 25 feet, trace screened | po |
| 25 | | | • | | 6 | | | silt. compact in place. loose | |
| | Q | 13 | | | | | | when distribed, statilied, jew 10 0) i | |
| | | | 2 | | | | | when disturbed, stratified, few fine shell fragments, (SW-SP) | |
| | | | | 5 | | / | 3" | 110 1 61 1 | |
| | | | 1 | | 6 | | | ⊨ Φ) [| |
| | 10 | 8 | | | | | | 28.5 28.5 | |
| | <u> </u> | | 9 | | | 19 | 24" | SSUP | |
| | <u> </u> | | | 10 | | | 1 | | |
| | | 1 | | | ן | | | Extremely moist reddish brown 29.0 (SILTY-CLAY), soft, (CL) 29.0 | |
| 2.0 | | | | - | | | | (billi dirif) sore, (dir | |
| 30 | <u> </u> | | | | | | | Boring completed to 29.0 feet. Noticed slight oily a | appe |
| | | | | | | | | ance to water at base | e o: |
| | | <u>!</u> | | | | | | alluvial sediment. | |
| | | | | | | | | Water table at 10.0 f | foo |
| | | | | | | | | prior to installing v | |
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| EARTH | DIMENSIONS, INC. |
|--|---|
| | Test Borings and Logs East Aurora, New York 14052 • (716) 655-1717 |
| MONITORING WELL OW-41-85 | SURF. ELEV. |
| PROJECT 102nd Street Landfill well ins 1E85d Buffalo Avenue, Niagara Falls, | |
| CLIENT GEOTRANS/EPA and DOJ | DATE STARTED <u>11/25/85</u> COMPLETED Sampled to refusal 11/26/85 |

| No samples taken from surface to 28.0 feet refer to descriptions of pearth welf to refusal 11/26/85 | CLIENT | Γ. | GEOT | RANS | /FPA | an | <u> 2001</u> | | | COMPLETED |
|--|--------------|--------|--------------------|------|------|-----|--------------|--|------|--|
| Water sorted and deposited mostly sand and gravel to 28.0 feet refer to descriptions of nearby wells OW-37-85 and OW-40-85 for visual descriptions of fill-sediment layers above 29.0 feet over clayer lake sediment to 29.5 feet with blow counts of 24-16-3. Wet gray gravelly (SAND) with 30 to 40% mostly rounded fine and medium size gravel, mostly medium to coarse size sand, trace silt, (SP) When the coarse of the coming very soft below 30.0 feet, weak thickly (about 1 inch thick) laminated, noticed one subrounded gravel, with occasional gray silt lens and also below 32.0 feet brown very fine Sand lenses 1/6 inch thick WHE COMMENT OF THE COMMEN | | | | | | | | Sampled to reit | 1541 | 11/26/85 |
| No samples taken from surface to 28.0 feet refer to descriptions of nearby wells OW-37-85 and OW-40-65 for visual descriptions of fill-sediment layers above 29.0 feet over clayer lake sediment to 25.0 feet over loamy glacial till to refusal at 39.3 feet. Resampled 28.0 to 29.5 feet with blow counts of 24-16-3. Wet gray gravelly (SAND) with 30 to 40% mostly rounded fine and medium size gravel, mostly medium to coarse size sand, trace silt, (SP) When the coarse of the coarse of the coarse size sand, trace silt, (SP) See next sheet. Water sorted and deposited mostly sand and grayeal to 29.0 feet over clayer lake sediment to 29.0 feet | DEPTH | SAMPLE | | SAMP | In/ | N | REC | DESCRIPTION & CLASSIFICATION | WELL | WATER TABLE & REMARKS |
| wet gray gravelly (SAND) with 30 to 40% mostly rounded fine and medium size gravel, mostly medium to coarse size sand, trace sitt, (SP) 24 | | | | | | | | 28.0 feet, refer to descriptions of nearby wells OW-37-85 and OW-40-85 for visual descriptions of fill-sediment layers above 29.0 | | deposited mostly sand and gravel to 29.0 feet over clayey lake sediment to 35.0 feet over loamy glacial till to refusal at 39.3 feet. Resampled 28.0 to |
| Wet gray gravelly (SAND) with 30 to 40% mostly rounded fine and medium size gravel, mostly medium to coarse size sand, trace silt, (SP) 29.0 Extremely moist reddish brown (SILTY-CLAY), soft becoming very soft below 30.0 feet, weak thickly (about 1 inch thick) laminated, noticed one subrounded gravel, with occasional gray silt lens and also below 32.0 feet brown very fine sand lenses 1/8 inch thick WR WR WR 22" See next sheet. | 25 | | | | | | | - | | WR- Penetration of sampler with weight of rods only. |
| Extremely moist reddish brown (SILTY-CLAY), soft becoming very soft below 30.0 feet, weak thickly (about 1 inch thick) laminated, noticed one subrounded gravel, with occasional gray silt lens and also below 32.0 feet brown very fine sand lenses 1/8 inch thick WR WR 22" grades downward to 25.0 See next sheet. | | ٦ | ! - : - | | | | Ç | to 40% mostly rounded fine and medium size gravel, mostly medium to coarse size sand, trace silt, (SP) | | sampler with weight |
| and also below 32.0 feet brown very fine sand lenses 1/8 inch thick WR | 30 | 2 | WR | JR. | | | | Extremely moist reddish brown (SHLTY-CLAY), soft becoming very soft below 30.0 feet, weak thickly (about 1 inch thick) laminated, noticed one subrounded gravel, | | |
| See next sheet. | | 0 | 1 | √R | WH | WR. | | and also below 32.0 feet brown very fine sand lenses 1/8 inch thick | | |
| | 35 | 4 | | JD. | WR | | | , grades downward to | | |



| | | Test Borings | and Logs New York 14052 • (716) (| 655-1717 |
|------------------|---------------------------------------|--|--|----------------------------|
| MOTINOM. LLEW | RING 0W-41-85 CO | | | SURF. ELEV |
| PROJECT 1E85d | | Landfill well installation e. Niagara Falls, New York | · | |
| CLIENT | GEOTRANS/EPA a | and DOJ | DATE STARTED 11/ Sampled to refu | |
| | BLOM? ON | | Sampled to left | ISA1 11/20/63 |
| DEPTH KEY | SAMPLER 0 6 12 12 1h 8 | | SIRCATION | WELL WATER TABLE & REMARKS |
| | · · · · · · · · · · · · · · · · · · · | 22" Extremely moist a gravelly loam (SA | | |
| | 28 | \(\text{with 15 to 40% mc}\) | ostly subangular | |
| | 38 67 | dolomitic gravel, soil structure, | (MT _CT) | |
| | 20 44 | 17" ' clear tra Extremely moist b | ansition to 36.0 | • |
| | 15 | loam (SANDY-SILT) |) with 15 to 40% | |
| | | | r dolomitic gravel obble, very dense, | |
| 40 | 100/35" | massive soil str | ucture, (ML) 39.3 | |
| | | Advanced augers i | in bedrock 0.5 | |
| | | feet. | | |
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| N = NUMBER OF BLOWS TO DRIVE $\frac{2}{2}$ "SPOON $\frac{12}{2}$ "WITH $\frac{140}{2}$ Ib. WT. FALLING $\frac{30}{2}$ "F | ER BL | L | _1 | | ١. | | - | - | _ | _ | _ | Ļ | ļ | ļ | ļ | !! | }! | 3 | 3 | 3 | 3 | 3 | 3! | }! | (l | ļ | ! | }! | 3! | (l | 3! | }! | 3! | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | E | Ε | E | , | ₹ | ₹ | ? | ? | ₹ | ₹ | ? | ? | ? | ? | ? | ₹ | ₹ | ₹ | ₹ | ? | ? | ₹ | F | Ŕ | 7 | ₹ | i | i | Ε | ì | > | F | į | •• | • | _ | _ | | _ | _ | _ | 0 | 3 | _ | • | í | 10 | ۱ħ | L | Αl | F | | Τ. | ٧T | W |). | lb. | ļ | - | 40 | 14 | _ | | _ | ١. | ΙTΗ | W | ' 1 | _ ' | _ | 2 | 1. | |
|--|-------|-----|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|------------|-----|------------|------------|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|---|---|---|----|---|-----|----|-----|-----|-----|-------|-------|---------|---------|---------|-------|-------|-------|--|----------|-------|----------|-------------------|--------------------|----------------------|-----------------------|----------------|-----------------|-------------------|----------------------------|------------------------------------|----------------------|------------------------|-------------------------|--------------------------|-------------------------|--|------------------------------|------------------------------|---|------------------------------|--------------------------------|--|---|---------------------------------------|--|---------------------------------------|--|---|
| PER | i | В | В! | ΒL | ΒL | ΒL | В! | BI. | В! | В! | В! | В! | В | В | В | В | Ξ | | | | | ĺ | Ξ | Ξ | В | В | В | Ξ | Ξ | В | Ξ | Ξ | Ξ | Ε | Ξ | Ē | Ξ | Ξ | Ξ | Ē | Ē | | ĺ | į | i | | | | | | | | | | | | | | | | | | | | ₹ | ť | , | | ₹ | 2 | R | ΞR | ER | 'ER | PER | PER | " PER | " PER | _ " PER | _ " PER | " PER | " PER | " PER | " PER | 0 " PER | 30 " PER | | 30 " PER | 30 " PER | NG 30 " PER | ING 30 " PER | LLING " PER | ALLING 30 "PER | FALLING 30 "PER | FALLING 30 "PER | I. FALLING 30 "PER | /T. FALLING 30 " PER | WT. FALLING 30 " PER | . WT. FALLING 30 " PER | b. WT. FALLING 30 "PER | Ib. WT. FALLING 30 " PER | _ Ib. WT. FALLING | 40 lb. WT. FALLING 30 "PER | 140 lb. WT. FALLING 30 " PER | 140 lb. WT. FALLING 30 " PER | 140 lb. WT. FALLING 30 " PER | 140_ lb. WT. FALLING | 1 140 Ib. WT. FALLING 30 "PER | TH 140 Ib. WT. FALLING 30 "PER | WITH 140 Ib. WT. FALLING 30 "PER | ' WITH 140 Ib. WT. FALLING " PER | _" WITH 140 Ib. WT. FALLING 30 " PER | " WITH 140 Ib. WT. FALLING 30 " PER | 2 " WITH 140 Ib. WT. FALLING 30 " PER | 12 " WITH 140 Ib. WT. FALLING 30 " PER |
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| PER | | В | BI. | BL | BL | BL | B! | B! | BI. | BI. | B! | В | В | В | В | В | E | E | Ē | 1 | E | E | E | E | В | В | В | E | E | В | E | E | E | E | E | E | E | E | E | E | E | Ē | į | | | | | | | | | | | | | | | | | | | | | | ? | 1 | , | | ₹ | 2 | R | ER | ER | 'ER | PER | PER | " PER | " PER | _" PER | _ " PER | _ " PER | " PER | " PER | " PER | 0 " PER | 30 " PER | | | 30 " PER | √G 30 " PER | ING 30 " PER | LLING <u>30</u> " PER | ALLING 30 "PER | FALLING 30 "PER | FALLING 30 "PER | I. FALLING 30 "PER | /T. FALLING 30 " PER | WT. FALLING 30 " PER | . WT. FALLING | b. WT, FALLING 30 "PER | Ib. WT. FALLING 30 "PER | Ib. WT. FALLING " PER | 40 Ib. WT. FALLING 30 "PER | 140 lb. WT. FALLING 30 "PER | 140 Ib. WT. FALLING 30 "PER | 140 Ib. WT. FALLING | 140_ lb. WT. FALLING " PER | 1 140 lb. WT. FALLING 30 "PER | ITH $= 140$ Ib. WT. FALLING $= 30$ " PER | WITH $\frac{140}{}$ Ib. WT. FALLING $\frac{30}{}$ " PER | WITH 140 Ib. WT. FALLING 30 "PER | _" WITH140 lb. WT. FALLING30 " PER | " WITH140 | 2 " WITH 140 Ib. WT. FALLING 30 " PER | 12_" WITH140_ Ib. WT. FALLING30" PER |
| PEF | ₹ | В | BI. | BI. | BL | BI. | B! | B! | BI. | BI. | B! | В | В | В | В | В | E | E | E | E | E | E | E | E | В | В | В | E | E | В | E | E | E | E | E | E | E | E | E | E | E | E | j | | | , | ₹ | ₹ | ₹ | ₹ | ₹ | ? | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | | ì | ? | ? | - | - | F | F | EF | EF. | PEF | PEF | " PEF | " PEF | _" PEF | _ " PEF | " PEF | " PEF | " PEF | " PEF | 0 " PEF | 30 " PEF | | | 30 " PEF | √G <u>30</u> " PEF | ING 30 " PEF | LLING 30 "PEF | ALLING 30 "PEF | FALLING 30 "PEF | FALLING 30 "PER | I, FALLING 30 "PEF | /T. FALLING 30 " PEF | WT. FALLING 30 " PEF | . WT. FALLING " PEF | b. WT. FALLING 30 "PEF | Ib. WT. FALLING 30 " PEF | Ib. WT. FALLING" PEF | $\frac{40}{10}$ lb. WT. FALLING $\frac{30}{100}$ " PEF | 140 lb. WT. FALLING 30 "PEF | 140 lb. WT. FALLING 30 " PEF | 140 Ib. WT. FALLING | 140_ lb. WT. FALLING | 140 lb. WT. FALLING 30 "PEF | TTH140 | WITH <u>140</u> Ib. WT. FALLING <u>30</u> " PEF | WITH 140 Ib. WT. FALLING 30 "PER | _" WITH140 Ib. WT. FALLING30 " PEF | " WITH140 | 2 " WITH 140 Ib. WT. FALLING 30 " PEF | 12 " WITH 140 Ib. WT. FALLING 30 " PEF |
| PER | 7 | В | BI. | BI. | BL | BI. | B! | B! | BI. | BI. | B! | В | В | В | В | В | E | E | E | E | E | E | E | E | В | В | В | E | E | В | E | E | E | E | E | E | E | E | E | E | E | E | j | | | , | 7 | 7 | 7 | 7 | ? | ? | 7 | 7 | 7 | 7 | 7 | ? | 7 | 7 | 7 | ì | ì | ? | • | ì | ì | ì | ì | 'n | F | F | EF | EP. | PER | PER | " PER | " PER | _" PER | _ " PER | " PER | " PER | " PER | " PER | 0 " PER | 30 " PER | " PER | 30 " PER | 30 " PER | NG 30 " PER | ING 30 " PER | LLING 30 "PER | ALLING 30 "PER | FALLING 30 "PER | FALLING 30 "PER | I, FALLING 30 "PER | /T. FALLING 30 " PER | WT. FALLING 30 " PER | . WT. FALLING " PER | b. WT. FALLING 30 "PER | Ib. WT. FALLING 30 " PER | Ib. WT. FALLING" PER | $\frac{40}{10}$ lb. WT. FALLING $\frac{30}{100}$ " PER | 140 lb. WT. FALLING 30 "PER | 140 Ib. WT. FALLING 30 "PER | 140 | 140_ lb. WT. FALLING | 140 lb. WT. FALLING 30 "PER | TTH140 | WITH <u>140</u> Ib. WT. FALLING <u>30</u> " PER | WITH 140 Ib. WT. FALLING 30 "PER | _" WITH140 | " WITH140 | 2 " WITH 140 Ib. WT. FALLING 30 " PER | 12 " WITH 140 Ib. WT. FALLING 30 " PER |
| PEF | ₹ | В | B! | B! | BL | B! | B! | B! | B! | B! | B! | В | В | В | В | В | E | E | E | í | E | E | E | E | В | В | В | E | E | В | E | E | E | E | E | E | E | E | E | E | E | E | į | | | , | ₹ | ₹ | ? | ? | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | • | 3 | ₹ | ₹ | - | - | F | Ē | EF | EF | PEF | PEF | " PEF | " PEF | _ " PEF | _ " PEF | " PEF | " PEF | " PEF | " PEF | 0 " PEF | 30 " PEF | | | ; " PEF | √G <u>30</u> " PEF | .ING | LLING <u>30</u> " PEF | ALLING 30 "PEF | FALLING 30 "PEF | FALLING 30 "PER | I, FALLING 30 "PEF | /T. FALLING | WT. FALLING 30 " PEF | . WT. FALLING | b. WT. FALLING 30 "PEF | Ib. WT. FALLING 30 " PER | Ib. WT. FALLING" PEF | 40 Ib. WT. FALLING 30 "PEF | 140 lb. WT. FALLING 30 " PEF | 140 lb. WT. FALLING 30 " PEF | 140 | 140 Ib. WT. FALLING | 1 140 Ib. WT. FALLING 30 " PEF | TTH140 | WITH 140 Ib. WT. FALLING 30 "PEF | WITH 140 Ib. WT. FALLING 30 "PEF | _" WITH140 | " WITH140 Ib. WT. FALLING30 " PEF | 2 " WITH 140 Ib. WT. FALLING 30 " PEF | 12 " WITH 140 Ib. WT. FALLING 30 " PEF |
| PEF | ₹ | В | B! | BI. | BL | BI. | B! | B! | B! | B! | B! | В | В | В | В | В | E | E | E | E | E | E | E | Đ | В | В | В | E | E | В | E | Đ | E | E | E | E | E | E | E | E | E | E | į | | | , | ₹ | ₹ | ? | ? | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | | 3 | ₹ | ₹ | - | F | F | F | EF | 'EF | PEF | PEF | " PEF | " PEF | _" PEF | _ " PEF | " PEF | " PEF | " PEF | " PEF | 0 " PEF | 30 " PEF | " PEF | | ; " PEF | √G <u>30</u> " PEF | ING 30 " PEF | LLING 30 "PEF | ALLING 30 "PEF | FALLING 30 "PEF | FALLING 30 "PEF | I, FALLING 30 "PEF | /T. FALLING 30 " PEF | WT. FALLING 30 " PEF | . WT. FALLING | b. WT. FALLING 30 "PEF | Ib. WT. FALLING 30 " PEF | Ib. WT. FALLING" PEF | 40 lb. WT. FALLING 30 "PEF | 140 lb. WT. FALLING 30 " PEF | 140 lb. WT. FALLING 30 " PEF | 140 | 140 | 140 lb. WT. FALLING 30 "PEF | TTH140 | WITH $= 140$ Ib. WT. FALLING $= 30$ " PEF | WITH 140 Ib. WT. FALLING 30 "PEF | _" WITH140 | " WITH140 Ib. WT. FALLING30 " PEF | 2 " WITH 140 Ib. WT. FALLING 30 " PEF | 12 " WITH 140 Ib. WT. FALLING 30 " PEF |
| PEF | ₹ | В | B! | B! | BL | B! | B! | B! | B! | B! | B! | В | В | В | В | В | E | E | E | í | E | E | E | E | В | В | В | E | E | В | E | E | E | E | E | E | E | E | E | E | E | E | į | | | , | ₹ | ₹ | ? | ? | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | • | 7 | ₹ | ₹ | : | - | F | F | EF | EF | PEF | PEF | " PEF | " PEF | _ " PEF | _ " PEF | " PEF | " PEF | " PEF | " PEF | 0 " PEF | 30 " PEF | | | ; " PEF | √G <u>30</u> " PEF | .ING <u>30</u> " PEF | LLING <u>30</u> " PEF | ALLING 30 "PEF | FALLING 30 "PEF | FALLING 30 "PEF | I, FALLING <u>30</u> " PEF | /T. FALLING | WT. FALLING 30 " PEF | . WT. FALLING | b. WT. FALLING 30 "PEF | Ib. WT. FALLING 30 " PEF | Ib. WT. FALLING" PEF | 40 lb. WT. FALLING 30 "PEF | 140 lb. WT. FALLING 30 "PEF | 140 lb. WT. FALLING 30 " PEF | 140 | 140 Ib. WT. FALLING | 1 140 Ib. WT. FALLING 30 "PEF | TTH140 | WITH $\frac{140}{}$ Ib. WT. FALLING $\frac{30}{}$ " PEF | WITH 140 Ib. WT. FALLING 30 "PEF | _" WITH140 | " WITH140 Ib. WT. FALLING30 " PEF | 2 " WITH 140 Ib. WT. FALLING 30 " PEF | 12 " WITH 140 Ib. WT. FALLING 30 " PEF |
| PEF | ₹ | В | B! | BL | BL | BL | B! | B! | B! | B! | B! | В | В | В | В | В | E | E | E | i | E | E | E | E | В | В | В | E | E | В | E | E | E | E | E | E | E | E | E | E | E | E | į | | | , | ₹ | ₹ | ? | ? | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | • | 7 | ₹ | ₹ | : | - | F | F | EF | EF | PEF | PEF | " PEF | " PEF | _ " PEF | _ " PEF | " PEF | " PEF | " PEF | " PEF | 0 " PEF | 30 " PEF | | | ; " PEF | √G <u>30</u> " PEF | .ING <u>30</u> " PEF | LLING <u>30</u> " PEF | ALLING 30 "PEF | FALLING 30 "PEF | FALLING 30 "PEF | I, FALLING <u>30</u> " PEF | /T. FALLING | WT. FALLING 30 " PEF | . WT. FALLING | b. WT. FALLING 30 "PEF | Ib. WT. FALLING 30 " PEF | Ib. WT. FALLING" PEF | 40 lb. WT. FALLING 30 "PEF | 140 lb. WT. FALLING 30 "PEF | 140 lb. WT. FALLING 30 " PEF | 140 | 140 Ib. WT. FALLING | 1 140 Ib. WT. FALLING 30 "PEF | TTH140 | WITH $\frac{140}{}$ Ib. WT. FALLING $\frac{30}{}$ " PEF | WITH 140 Ib. WT. FALLING 30 "PEF | _" WITH140 | " WITH140 Ib. WT. FALLING30 " PEF | 2 " WITH 140 Ib. WT. FALLING 30 " PEF | 12 " WITH 140 Ib. WT. FALLING 30 " PEF |
| PEF | ₹ | В | B! | B! | BL | B! | B! | B! | B! | B! | B! | В | В | В | В | В | E | E | E | i | E | E | E | E | В | В | В | E | E | В | E | E | E | E | E | E | E | E | E | E | E | E | | | | , | ? | ? | ? | ? | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ? | 7 | 7 | ₹ | - | 7 | ₹ | ₹ | : | ř | i | F | EF | EF | PEF | PEF | " PEF | " PEF | _ " PEF | _ " PEF | " PEF | " PEF | " PEF | " PEF | 0 " PEF | 30 " PEF | " PEF | | 30 " PEF | 4G <u>30</u> " PEF | .ING <u>30</u> " PEF | LLING <u>30</u> " PEF | ALLING 30 "PEF | FALLING 30 "PEF | FALLING 30 "PEF | I, FALLING 30 "PEF | /T. FALLING | WT. FALLING 30 " PEF | . WT. FALLING | b. WT. FALLING | Ib. WT. FALLING 30 " PEF | Ib. WT. FALLING " PEF | 40 Ib. WT. FALLING 30 "PEF | 140 Ib. WT. FALLING 30 "PEF | 140 lb. WT. FALLING 30 " PEF | 140 Ib. WT. FALLING 30 " PEF | 140 Ib. WT. FALLING | 1 140 Ib. WT. FALLING 30 " PEF | ITH 140 Ib. WT. FALLING 30 "PEF | WITH $\frac{140}{}$ Ib. WT. FALLING $\frac{30}{}$ " PEF | WITH 140 Ib. WT. FALLING 30 "PEF | _" WITH140 | " WITH140 Ib. WT. FALLING30 " PEF | 2 " WITH 140 Ib. WT. FALLING 30 " PEF | 12 " WITH 140 Ib. WT. FALLING 30 " PEF |
| PEF | ₹ | В | B! | B! | BL | B! | B! | B! | B! | B! | B! | В | В | В | В | В | E | E | E | i | E | E | E | E | В | В | В | E | E | В | E | E | E | Ε | Ε | Ε | Ε | Ε | Ε | Ε | Ε | E | · } | | | | ? | ? | ? | ? | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ₹ | ? | ₹ | ₹ | ₹ | - | 7 | ₹ | ₹ | | | i | Ē | ΕF | 'EF | PEF | PEF | " PEF | " PEF | _ " PEF | _ " PEF | " PEF | " PEF | " PEF | " PEF | 0 " PEF | 30 " PEF | " PEF | | 30 " PEF | √G <u>30</u> " PEF | .ING | LLING | ALLING 30 "PEF | FALLING 30 "PEF | FALLING 30 "PEF | I, FALLING 30 " PEF | /T. FALLING | WT. FALLING 30 " PEF | . WT. FALLING | b. WT. FALLING 30 " PEF | Ib. WT. FALLING 30 " PER | Ib. WT. FALLING" PEF | 40 Ib. WT. FALLING 30 "PER | 140 Ib. WT. FALLING 30 "PEF | 140 Ib. WT. FALLING 30 " PEF | 140 | 140 Ib. WT. FALLING | 1 140 Ib. WT. FALLING 30 " PEF | ITH 140 Ib. WT. FALLING 30 "PER | WITH140 Ib. WT. FALLING | WITH 140 Ib. WT. FALLING 30 "PER | _" WITH140 | " WITH140 Ib. WT. FALLING30 " PEF | 2" WITH140_ Ib. WT. FALLING30" PEF | 12 " WITH 140 Ib. WT. FALLING 30 " PEF |
| PΕi | R | В | BL | BL | BL | BL | Bl | BL | BL | BL | B! | B | В | В | В | В | E | E | E | E | E | E | E | E | B | В | В | E | E | B | E | E | E | E | E | E | E | E | E | E | E | E | 1 | : : | ì | | | | Ì | Ì | 3 | 7 | ì | ì | ì | ì | ì | 3 | ì | ì | | 3 | 3 | ì | F | ŕ | 7 | 7 | | | i | - 1 | Εi | Έi | PEi | PE | " PE | " PE | _ " PE | _ " PE | " PE | " PE | " PE | " PE | 0 " PEi | 30 " PE | " PE | | ; <u>30</u> " PEI | √G <u>30</u> " PE | .ING " PEI | LLING 30 "PE | ALLING 30 "PE | FALLING 30 " PE | FALLING 30 "PE | I. FALLING 30 "PE | /T. FALLING | WT. FALLING 30 " PE | . WT. FALLING 30 " PEI | b. WT. FALLING " PEF | Ib. WT. FALLING 30 " PE | Ib. WT. FALLING " PEI | 40 lb. WT. FALLING PE | 140 Ib. WT. FALLING 30 " PE | 140 Ib. WT. FALLING 30 " PE | 140 | 140_ lb. WT. FALLING30 " PE | 1 140 lb. WT. FALLING 30 "PE | ITH 140 Ib. WT. FALLING 30 "PE | WITH140_ Ib. WT. FALLING30" PE | WITH 140 Ib. WT. FALLING 30 "PE | _" WITH140 Ib. WT. FALLING30" PE | " WITH140 lb. WT. FALLING30 " PE | 2 " WITH 140 Ib. WT. FALLING 30 " PE | 12 " WITH 140 Ib. WT. FALLING 30 " PE |
| PEi | F | ≀B | ≀ Bl | ≀ BL | ≀BL | ≀ BL | ≀Bl | ≀BL | ≀ Bl | ≀ Bl | } B! | } B! | ≀B | ≀B | ≀B | ≀B | E | E | È | ì | E | E | E | E | ∂B | ≀B | ≀B | E | E | ∂B | E | E | E | E | E | E | E | E | E | E | E | È | Ò | : : | ì | ì | , | , | , | , | • | ì | • | • | • | • | • | • | • | • | , | 7 | 7 | • | F | î | ì | 7 | ŕ | į | i | Ξi | Εi | Έi | PEi | PE | " PEi | " PE | _ " PE | _ " PE | " PE | " PEi | " PE | " PEi | 0 " PEi | 30 " PE | " PE | | ; <u>30</u> " PEI | √G <u>30</u> " PEI | .ING <u>30</u> " PEI | LLING 30 "PEI | ALLING 30 "PE | FALLING 30 " PE | . FALLING 30 "PEI | I. FALLING 30 "PEI | /T. FALLING" PEI | WT. FALLING 30 " PEI | . WT. FALLING 30 " PEI | b. WT. FALLING | Ib. WT. FALLING 30 " PEI | Ib. WT. FALLING " PEI | 40 lb. WT. FALLING 30 "PE | 140 Ib. WT. FALLING 30 " PE | 140 Ib. WT. FALLING 30 " PE | 140 lb. WT. FALLING | 140_ lb. WT. FALLING30 " PEI | 1 140 lb. WT. FALLING 30 "PE | ITH 140 Ib. WT. FALLING 30 "PE | WITH140_ Ib. WT. FALLING | WITH 140 Ib. WT. FALLING 30 "PE | _" WITH140 lb. WT. FALLING30" PEI | " WITH140 Ib. WT. FALLING30 " PEI | 2" WITH140_ Ib. WT. FALLING30" PEI | 12 " WITH 140 Ib. WT. FALLING 30 " PEI |
| PΕ | F | ₹B | ≀ Bl | ≀BL | ₹BL | ≀BL | ₹BI | ≀BL | ≀ Bl | ≀ Bl | ₹ B! | ₹ B | ₹В | ₹B | ₹B | ₹B | ŧ | ₹ E | ₹ | ₹ [| ₹ | ₹E | ŧ | ₹E | ₹B | ₹B | ₹B | ₹ E | ŧ | ₹B | ŧ | ₹E | ŧ | ₹E | ₹E | ₹E | ₹E | ₹E | ₹E | ₹E | ₹E | ₹ | ₹ } | ₹ : | ₹ | ? | | | • | • | • | - | • | • | • | • | • | • | | | | • | • | | F | r | - | - | í | í | | Ξ | E | Έ | PE | PE | " PE | " PE | _ " PE | _ " PE | _ " PE | " PE | " PE | " PE | 0 " PE | 30 " PE | " PE | 30 " PE | ; <u>30</u> " PE | NG 30 " PE | .ING " PE | LLING 30 "PE | ALLING 30 "PE | FALLING 30 "PE | FALLING 30 "PE | I. FALLING 30 "PE | /T. FALLING" PE | WT. FALLING 30 " PE | . WT. FALLING 30 " PE | b. WT. FALLING " PE | Ib. WT. FALLING 30 " PE | Ib. WT. FALLING " PE | 40 lb. WT. FALLING 30 " PE | 140 Ib. WT. FALLING 30 " PE | 140 Ib. WT. FALLING 30 " PE | 140 lb. WT. FALLING | 140_ lb. WT. FALLING30 " PE | 1 140 lb. WT. FALLING 30 "PE | ITH 140 Ib. WT. FALLING 30 " PE | WITH 140 | WITH 140 Ib. WT. FALLING 30 "PE | _" WITH <u>140</u> Ib. WT. FALLING <u>30</u> " PEI | " WITH140 Ib. WT. FALLING30 " PE | 2 " WITH 140 Ib. WT. FALLING 30 " PE | 12 " WITH 140 Ib. WT. FALLING 30 " PE |
| PEi | F | ≀B | ≀ Bl | ≀BL | ≀BL | ≀BL | ≀Bl | ≀BL | ≀ Bl | ≀ Bl | } B! | } B! | ≀B | ≀B | ≀B | ≀B | E | E | È | ì | E | E | E | E | ∂B | ≀B | ≀B | E | E | ∂B | E | E | E | E | E | E | E | E | E | E | E | È | Ò | : : | ì | ì | , | , | , | , | • | ì | • | • | • | • | • | • | • | • | , | 7 | 7 | • | F | î | ì | 7 | ŕ | į | i | Ξi | Εi | Έi | PEi | PE | " PEi | " PE | _ " PE | _ " PE | " PE | " PEi | " PE | " PEi | 0 " PEi | 30 " PE | " PE | | ; <u>30</u> " PEI | √G <u>30</u> " PEI | .ING <u>30</u> " PEI | LLING 30 "PEI | ALLING 30 "PE | FALLING 30 " PE | . FALLING 30 "PEI | I. FALLING 30 "PEI | /T. FALLING" PEI | WT. FALLING 30 " PEI | . WT. FALLING 30 " PEI | b. WT. FALLING | Ib. WT. FALLING 30 " PEI | Ib. WT. FALLING " PEI | 40 lb. WT. FALLING 30 "PE | 140 Ib. WT. FALLING 30 " PE | 140 Ib. WT. FALLING 30 " PE | 140 lb. WT. FALLING | 140_ lb. WT. FALLING30 " PEI | 1 140 lb. WT. FALLING 30 "PE | ITH 140 Ib. WT. FALLING 30 "PE | WITH140_ Ib. WT. FALLING | WITH 140 Ib. WT. FALLING 30 "PE | _" WITH140 lb. WT. FALLING30" PEI | " WITH140 Ib. WT. FALLING30 " PEI | 2" WITH140_ Ib. WT. FALLING30" PEI | 12 " WITH 140 Ib. WT. FALLING 30 " PEI |
| PEi | F | ≀B | ≀ BL | ≀ BL | ≀BL | ≀ BL | ≀Bl | ≀BL | ≀ BL | ≀ BL | } B! | } B! | ≀B | ≀B | ≀B | ₽ | E | E | ₹ 6 | } | € | E | E | E | ìB | ≀B | ≀B | E | E | ìB | E | E | E | E | E | E | E | E | E | E | E | ₹ 6 | 7 | ? : | ? | ì | • | • | • | • | • | 7 | • | • | • | • | • | • | • | • | • | 7 | 7 | • | F | ì | 7 | 7 | ŕ | į | i | Ξi | Εi | Έi | PEi | PE | " PEi | " PE | _ " PE | _ " PE | " PE | " PEi | " PE | " PEi | 0 " PEi | 30 " PE | " PE | | ; <u>30</u> " PEI | √G <u>30</u> " PEI | .ING <u>30</u> " PEI | LLING 30 "PEI | ALLING 30 "PE | FALLING 30 " PE | . FALLING 30 "PEI | I. FALLING 30 "PEI | /T. FALLING" PEI | WT. FALLING 30 " PEI | . WT. FALLING 30 " PEI | b. WT. FALLING | Ib. WT. FALLING 30 " PEI | Ib. WT. FALLING " PEI | 40 lb. WT. FALLING 30 "PE | 140 Ib. WT. FALLING 30 " PE | 140 Ib. WT. FALLING 30 " PE | 140 lb. WT. FALLING | 140_ lb. WT. FALLING30 " PEI | 1 140 lb. WT. FALLING 30 "PE | ITH 140 Ib. WT. FALLING 30 "PE | WITH140_ Ib. WT. FALLING | WITH 140 Ib. WT. FALLING 30 "PE | _" WITH140 lb. WT. FALLING30" PEI | " WITH140 Ib. WT. FALLING30 " PEI | 2" WITH140_ Ib. WT. FALLING30" PEI | 12 " WITH 140 Ib. WT. FALLING 30 " PEI |
| PEF | ₹ | В | B. | B. | BL | B. | B! | B! | B. | B. | B | В | В | В | В | В | E | E | E | í | F | E | E | E | В | В | В | Ε | E | В | E | E | E | E | E | Ε | E | E | E | Ε | Ε | E | ' } | . : | | , | ? | ? | ? | ? | ₹ | ₹ | ? | ? | ? | ? | ? | ₹ | ₹ | ₹ | ? | 2 | 2 | ₹ | ; | 7 | ₹ | ₹ | | | i | Ē | ΕF | 'EF | PEF | PEF | " PEF | " PEF | _ " PEF | _ " PEF | " PEF | " PEF | " PEF | " PEF | 0 " PEF | 30 " PEF | " PEF | | 30 " PEF | √G <u>30</u> " PEF | .ING | LLING | ALLING 30 "PEF | FALLING 30 "PEF | FALLING 30 "PEF | I, FALLING 30 " PEF | /T. FALLING | WT. FALLING 30 " PEF | . WT. FALLING | b. WT. FALLING 30 " PEF | Ib. WT. FALLING 30 " PER | Ib. WT. FALLING" PEF | 40 Ib. WT. FALLING 30 "PER | 140 Ib. WT. FALLING 30 "PEF | 140 Ib. WT. FALLING 30 " PEF | 140 | 140 Ib. WT. FALLING | 1 140 Ib. WT. FALLING 30 " PEF | ITH 140 Ib. WT. FALLING 30 "PER | WITH140 Ib. WT. FALLING | WITH 140 Ib. WT. FALLING 30 "PER | _" WITH140 | " WITH140 Ib. WT. FALLING30 " PEF | 2" WITH140_ Ib. WT. FALLING30" PEF | 12 " WITH 140 Ib. WT. FALLING 30 " PEF |
| PEF | ₹ | В | B! | B! | BL | B! | Bl | Bl | B! | B! | B! | В | В | В | В | В | Ε | E | E | í | E | E | Ε | E | B | В | В | E | Ε | B | Ε | E | Ε | Ε | E | Ε | E | E | E | Ε | Ε | E | () | <i>'</i> : | , | | ? | ? | ? | ? | ₹ | ₹ | ? | ? | ? | ? | ? | ₹ | ₹ | ₹ | ? | ₹ | ₹ | ₹ | - | 7 | ₹ | ₹ | : | ř | i | F | EF | EF | PEF | PEF | " PEF | " PEF | _ " PEF | _ " PEF | " PEF | " PEF | " PEF | " PEF | 0 " PEF | 30 " PEF | " PEF | | 30 " PEF | 4G <u>30</u> " PEF | .ING <u>30</u> " PEF | LLING <u>30</u> " PEF | ALLING 30 "PEF | FALLING 30 "PEF | FALLING 30 "PEF | I, FALLING 30 "PEF | /T. FALLING | WT. FALLING 30 " PEF | . WT. FALLING | b. WT. FALLING | Ib. WT. FALLING 30 " PEF | Ib. WT. FALLING " PEF | 40 Ib. WT. FALLING 30 "PEF | 140 Ib. WT. FALLING 30 "PEF | 140 lb. WT. FALLING 30 " PEF | 140 Ib. WT. FALLING 30 " PEF | 140 Ib. WT. FALLING | 1 140 Ib. WT. FALLING 30 " PEF | ITH 140 Ib. WT. FALLING 30 "PEF | WITH $\frac{140}{}$ Ib. WT. FALLING $\frac{30}{}$ " PEF | WITH 140 Ib. WT. FALLING 30 "PEF | _" WITH140 | " WITH140 Ib. WT. FALLING30 " PEF | 2 " WITH 140 Ib. WT. FALLING 30 " PEF | 12 " WITH 140 Ib. WT. FALLING 30 " PEF |
| PEi | Ŕ | В | BL | BL | BL | BL | Bl | BL | BL | BL | B! | В | В | В | В | В | E | E | E | Œ | E | E | E | E | B | В | В | E | E | B | E | E | E | E | E | E | E | E | E | E | E | E | () | <i>t</i> : | ť | | ì | ì | ì | ì | 7 | 7 | 3 | 3 | 3 | 3 | 3 | 7 | 3 | 3 | ì | 3 | 3 | 3 | r | Ŕ | 7 | 7 | | | i | ij | Εi | Έi | PEi | PE | " PEI | " PE | _ " PEi | _ " PE | " PEi | " PEi | " PEi | " PEi | 0 " PEi | 30 " PE | " PE | | 30 " PEI | √G <u>30</u> " PEI | .ING " PEI | LLING <u>30</u> " PEI | ALLING 30 "PE | FALLING 30 "PE | FALLING 30 "PE | I. FALLING 30 "PEI | /T. FALLING | WT. FALLING 30 " PE | . WT. FALLING 30 "PE | b. WT. FALLING 30 "PE | Ib. WT. FALLING 30 " PE | Ib. WT. FALLING " PEI | 40 lb. WT. FALLING 30 "PE | 140 Ib. WT. FALLING 30 " PE | 140 lb. WT. FALLING 30 "PE | 140 lb. WT. FALLING | 140_ lb. WT. FALLING30 " PEI | 1 140 Ib. WT. FALLING 30 "PE | ITH 140 Ib. WT. FALLING 30 "PE | WITH <u>140</u> Ib. WT. FALLING <u>30</u> " PET | WITH 140 Ib. WT. FALLING 30 "PE | _" WITH140 Ib. WT. FALLING30 | " WITH140 lb. WT. FALLING30 " PE | 2" WITH140_ Ib. WT. FALLING30" PEI | $\frac{12}{1}$ " WITH $\frac{140}{10}$ Ib. WT. FALLING $\frac{30}{10}$ " PE |
| PE | 7 | В | BL | BL | BL | BL | BI | Bl | BL | BL | B | В | В | В | В | В | E | E | E | E | E | E | E | E | B | В | В | E | E | B | E | E | E | E | E | E | E | E | E | E | E | E | () | (: | ľ | | ì | ì | ? | ? | 7 | 7 | 3 | 3 | 3 | 3 | 3 | 7 | 3 | 3 | ì | 7 | 7 | 3 | - | 7 | 7 | 7 | • | • | i | : | Ei | Έi | PEi | PE | " PE | " PE | _ " PE | _ " PE | " PE | " PE | " PE | " PE; | 0 " PE; | 30 " PE | " PE | | 30 " PE | √G <u>30</u> " PE | .ING " PEF | LLING " PEF | ALLING 30 "PE | FALLING 30 " PE | FALLING 30 "PER | I. FALLING 30 " PER | /T. FALLING | WT. FALLING 30 " PER | . WT. FALLING 30 "PEF | b. WT. FALLING 30 "PEF | Ib. WT. FALLING 30 " PER | Ib. WT. FALLING " PEF | 40 lb. WT. FALLING 30 "PE | 140 Ib. WT. FALLING 30 " PE | 140 Ib. WT. FALLING 30 " PE | 140 | 140_ lb. WT. FALLING30 " PE | 1 140 Ib. WT. FALLING 30 "PE | ITH 140 Ib. WT. FALLING 30 " PER | WITH140 Ib. WT. FALLING | WITH 140 Ib. WT. FALLING 30 "PE | _" WITH140 Ib. WT. FALLING30" PE | " WITH140 lb. WT. FALLING30 " PE | 2" WITH140_ Ib. WT. FALLING30" PEF | 12 " WITH 140 Ib. WT. FALLING 30 " PE |
| PEi | ĥ | ≀B | ≀ BL | ≀ BL | ≀BL | ≀ BL | ≀ BI | ≀Bl | ≀ BL | ≀ BL | ≀ B! | } B | ∂B | ≀B | ≀B | ≀B | E | E | E | ì | E | E | E | E | ∂B | ≀B | ≀B | E | E | ∂B | E | E | E | E | E | E | E | E | E | E | E | E | () | (: | 3 | Ç | , | , | • | • | • | ì | • | • | • | • | • | • | • | • | , | • | • | • | F | î | ì | 7 | ŕ | į | i | Ξi | Εi | Έi | PEi | PE | " PEi | " PE | _ " PE | _ " PE | " PE | " PEi | " PE | " PEi | 0 " PEi | 30 " PE | " PE | | ; <u>30</u> " PEI | √G <u>30</u> " PEI | .ING <u>30</u> " PEI | LLING 30 "PEI | ALLING 30 "PE | FALLING 30 " PE | . FALLING 30 "PEI | I. FALLING 30 "PEI | /T. FALLING" PEI | WT. FALLING 30 " PEI | . WT. FALLING 30 " PEI | b. WT. FALLING | Ib. WT. FALLING 30 " PEI | Ib. WT. FALLING " PEI | 40 lb. WT. FALLING 30 "PE | 140 Ib. WT. FALLING 30 " PE | 140 Ib. WT. FALLING 30 " PE | 140 lb. WT. FALLING | 140_ lb. WT. FALLING30 " PEI | 1 140 lb. WT. FALLING 30 "PE | ITH 140 Ib. WT. FALLING 30 "PE | WITH140 | WITH 140 Ib. WT. FALLING 30 "PE | _" WITH140 lb. WT. FALLING30" PEI | " WITH140 Ib. WT. FALLING30 " PEI | 2" WITH140_ Ib. WT. FALLING30" PEI | 12 " WITH 140 Ib. WT. FALLING 30 " PEI |
| PEi | F | ≀B | ≀ BL | ≀ BL | ≀BL | ≀ BL | ≀ BI | ≀ BI | ≀ BL | ≀ BL | } B! | } B | ∂B | ≀B | ≀B | ≀B | E | E | E | } F | ? E | E | E | E | ì₽ | ≀B | ≀B | E | E | ì₽ | E | E | E | E | E | E | E | E | E | E | E | E | 7 | ? : | ? | ì | • | • | • | • | | ì | • | • | • | • | • | | • | • | • | | | • | F | 'n | ì | 7 | ŕ | į | i | Ξi | Εi | Έi | PEi | PE | " PEi | " PE | _ " PE | _ " PE | " PE | " PEi | " PE | " PEi | 0 " PEi | 30 " PE | " PE | | ; <u>30</u> " PEI | NG 30 " PE | .ING <u>30</u> " PEI | LLING 30 "PEI | ALLING 30 "PE | FALLING 30 " PE | . FALLING 30 "PEI | I. FALLING 30 "PEI | /T. FALLING" PEI | WT. FALLING 30 " PEI | . WT. FALLING 30 " PEI | b. WT. FALLING | Ib. WT. FALLING 30 " PEI | Ib. WT. FALLING " PEI | 40 lb. WT. FALLING 30 "PE | 140 Ib. WT. FALLING 30 " PE | 140 Ib. WT. FALLING 30 " PE | 140 lb. WT. FALLING | 140_ lb. WT. FALLING30 " PEI | 1 140 lb. WT. FALLING 30 "PE | ITH 140 Ib. WT. FALLING 30 "PE | WITH140 | WITH 140 Ib. WT. FALLING 30 "PE | _" WITH140 Ib. WT. FALLING30 " PEI | " WITH140 Ib. WT. FALLING30 " PEI | 2" WITH140_ Ib. WT. FALLING30" PEI | 12 " WITH 140 Ib. WT. FALLING 30 " PEI |
| PE. | F | ₹B | ₹ BL | ₹BL | ₹BL | ₹BL | ₹BI | ₹BI | ₹ BL | ₹ BL | ₹ B! | ₹ В | ₹В | ₹B | ₹B | ₹B | ₹E | ₹E | ₹E | ₹ [| ₹ | ₹E | ₹E | ₹E | ₹B | ₹B | ₹B | ₹ E | ₹E | ₹B | ₹E | ₹E | ₹E | ₹E | ₹E | ₹E | ₹E | ₹E | ₹E | ₹E | ₹E | ₹E | ₹ } | ₹ : | ₹ | ₹ | | | • | • | | - | : | : | : | : | : | | | | | : | : | | F | F | - | : | i | i | | - | E | Έ | PE | PE | " PE | " PE | _" PE | _ " PE | _ " PE | " PE | " PE | " PE | 0 " PE | 30 " PE | | | ; <u>30</u> " PE | √G <u>30</u> " PE | ING 30 "PE | LLING 30 "PE | ALLING " PE | FALLING 30 "PE | FALLING 30 "PE | I. FALLING 30 "PE | /T. FALLING | WT. FALLING 30 " PE | . WT. FALLING 30 "PE | b. WT. FALLING " PE | Ib. WT. FALLING 30 " PE | _ Ib. WT. FALLING " PE | 40 lb. WT. FALLING 30 "PE | 140 lb. WT. FALLING 30 "PE | 140 lb. WT. FALLING 30 "PE | 140 | 140_ lb. WT. FALLING30 " PE | 1 140 lb. WT. FALLING 30 "PE | ITH 140 Ib. WT. FALLING 30 "PE | WITH 140 Ib. WT. FALLING 30 "PE | 'WITH 140 Ib. WT. FALLING 30 "PE | _" WITH <u>140</u> Ib. WT. FALLING <u>30</u> " PE | " WITH140 Ib. WT. FALLING30 " PE | 2 " WITH 140 Ib. WT. FALLING 30 " PE | 12 " WITH 140 Ib. WT. FALLING 30 " PE |
| PΕ | F | ₹B | ₹BL | ₹BL | ₹BL | ₹BL | ₹BI | ₹BI | ₹BL | ₹BL | ₹ B! | ₹ В | ₹В | ₹B | ₹B | ₹B | ₹E | ₹E | ₹E | ₹ | ₹ | ₹E | ₹E | ₹E | ₹B | ₹B | ₹B | ₹E | ₹E | ₹B | ₹E | ₹E | ₹E | ₹E | ₹E | ₹E | ₹E | ₹E | ₹E | ₹E | ₹E | ₹E | ₹ } | ₹ : | ₹ | ₹ | • | • | • | • | : | - | • | • | • | • | • | : | | | • | : | : | | F | F | - | : | í | í | | Ξ | E | Έ | PE | PE | " PE | " PE | _ " PE | _ " PE | _ " PE | " PE | " PE | " PE | 0 " PE | 30 " PE | " PE | 30 " PE | ; <u>30</u> " PE | NG 30 " PE | .ING " PE | LLING 30 "PE | ALLING 30 "PE | FALLING 30 "PE | FALLING 30 "PE | I. FALLING 30 "PE | /T. FALLING" PE | WT. FALLING 30 " PE | . WT. FALLING 30 " PE | b. WT. FALLING " PE | Ib. WT. FALLING 30 " PE | Ib. WT. FALLING " PE | 40 lb. WT. FALLING 30 " PE | 140 Ib. WT. FALLING 30 " PE | 140 Ib. WT. FALLING 30 " PE | 140 lb. WT. FALLING | 140_ lb. WT. FALLING30 " PE | 1 140 lb. WT. FALLING 30 "PE | ITH 140 Ib. WT. FALLING 30 " PE | WITH 140 | WITH 140 Ib. WT. FALLING 30 "PE | _" WITH <u>140</u> Ib. WT. FALLING <u>30</u> " PEI | " WITH140 Ib. WT. FALLING30 " PE | 2 " WITH 140 Ib. WT. FALLING 30 " PE | 12 " WITH 140 Ib. WT. FALLING 30 " PE |
| PΕ | F | ₹B | ₹ BL | ₹ BL | R BL | ₹ BL | ₹ BI | ₹ BI | ₹ BL | ₹ BL | ₹ B! | ₹ B | ₹В | ₹В | ₹B | ₹B | ₹E | ₹ E | ₹ £ | ₹ 6 | ₹ | ₹E | ₹E | ₹E | ₹ 8 | ₹B | ₹B | ₹ E | ₹E | ₹ 8 | ₹E | ₹E | ₹E | ₹E | ₹E | ₹E | ₹E | ₹E | ₹E | ₹E | ₹E | ₹ £ | ₹ } | ₹ : | ₹ | ₹ | ; | ; | • | • | • | | • | • | • | • | • | • | : | : | ; | | | : | ŕ | - | | : | í | i | | - | Ε | Έ | PE | PE | " PE | " PE | _ " PE | _ " PE | " PE | " PE | " PE | " PE | 0 " PE | 30 " PE | " PE | | ; <u>30</u> " PE | √G <u>30</u> " PE | ING 30 "PE | LLING 30 "PE | ALLING 30 "PE | FALLING 30 "PE | FALLING 30 "PE | I. FALLING 30 "PE | /T. FALLING " PE | WT. FALLING 30 " PE | . WT. FALLING 30 "PE | b. WT. FALLING " PE | Ib. WT. FALLING 30 "PE | _ Ib. WT. FALLING " PE | 40 lb. WT. FALLING 30 "PE | 140 lb. WT. FALLING | 140 lb. WT. FALLING 30 "PE | 140 lb. WT. FALLING | 140_ lb. WT. FALLING30 " PE | 1 140 lb. WT. FALLING 30 " PE | ITH 140 Ib. WT. FALLING 30 "PE | WITH140_ Ib. WT. FALLING | WITH 140 Ib. WT. FALLING 30 "PE | _" WITH <u>140</u> Ib. WT. FALLING <u>30</u> " PE | " WITH140 Ib. WT. FALLING30 " PE | 2 " WITH 140 Ib. WT. FALLING 30 " PE | 12 " WITH 140 Ib. WT. FALLING 30 " PE |
| PΕ | ŕ | ₹B | ₹ BL | ₹ BL | R BL | ₹ BL | ₹ BI | ₹ BI | ₹ BL | ₹ BL | ₹ B! | ₹ B | ₹В | ₹В | ₹B | ₹B | ₹E | ₹ E | ₹ £ | ₹ 6 | ₹ | ₹E | ₹E | ₹E | ₹ 8 | ₹B | ₹B | ₹ E | ₹E | ₹ 8 | ₹E | ₹E | ₹E | ₹E | ₹E | ₹E | ₹E | ₹E | ₹E | ₹E | ₹E | ₹ £ | ₹ } | ₹ : | ₹ | ₹ | ; | ; | • | • | • | | • | • | • | • | • | • | : | : | ; | | | : | ŕ | - | | : | i | i | | : | Ε | Έ | PE | PE | " PE | " PE | _" PE | _ " PE | " PE | " PE | " PE | " PE | 0 " PE | 30 " PE | | | ; <u>30</u> " PE | √G <u>30</u> " PE | ING 30 "PE | LLING 30 "PE | ALLING 30 "PE | FALLING 30 "PE | FALLING 30 "PE | I. FALLING 30 "PE | /T. FALLING | WT. FALLING 30 " PE | . WT. FALLING 30 "PE | b. WT. FALLING " PE | Ib. WT. FALLING 30 "PE | _ Ib. WT. FALLING " PE | 40 lb. WT. FALLING 30 "PE | 140 lb. WT. FALLING 30 "PE | 140 lb. WT. FALLING 30 "PE | 140 | 140_ lb. WT. FALLING30 " PE | 1 140 lb. WT. FALLING 30 "PE | ITH 140 Ib. WT. FALLING 30 "PE | WITH140 Ib. WT. FALLING | 'WITH 140 Ib. WT. FALLING 30 "PE | _" WITH <u>140</u> Ib. WT. FALLING <u>30</u> " PE | " WITH140 Ib. WT. FALLING30 " PE | 2" WITH140_ Ib. WT. FALLING30" PE | 12 " WITH 140 Ib. WT. FALLING 30 " PE |
| PΕ | i | R₿ | R BL | R BL | R BL | R BL | R BI | R BI | R BL | R BL | R B! | R B | R B | R B | R₿ | R B | R E | R E | ₹ [| ₹ ₽ | R E | R € | R E | R E | R B | R B | R₿ | R E | R E | R B | R E | R E | R E | R E | R E | R E | R E | R E | R E | R E | R E | ₹ [| 2 | 2 | 2 | R | - | - | F | F | - | | - | - | - | - | - | - | F | F | - | - | - | F | í | | | | i | i | | - | Ε | E' | PE | PE | " PE | " PE | _ " PE | _ " PE | " PE | " PE | " PE | " PE | <u>0 </u> | 30 " PE | | | ; " PE | √G <u>30</u> " PE | ING 30 " PE | LLING 30 "PE | ALLING 30 "PE | FALLING 30 "PE | FALLING 30 "PE | I. FALLING 30 "PE | π . Falling $\frac{30}{}$ " PE | WT. FALLING 30 " PE | . WT. FALLING 30 "PE | b. WT. FALLING | Ib. WT. FALLING 30 " PE | _ lb. WT. FALLING | 40 lb. WT. FALLING 30 " PE | 140 lb. WT. FALLING | 140 lb. WT. FALLING 30 " PE | <u>140</u> lb. WT. FALLING <u>30</u> " PE | 140 lb. WT. FALLING | 1 140 Ib. WT. FALLING 30 " PE | ITH140 Ib. WT. FALLING " PE | WITH140_ Ib. WT. FALLING | WITH 140 Ib. WT. FALLING 30 "PE | _" WITH <u>140</u> Ib. WT. FALLING <u>30</u> " PE | " WITH140 | 2" WITH140_ Ib. WT. FALLING30" PE | 12 " WITH 140 Ib. WT. FALLING 30 " PE |
| ÞE | i | R B | R BL | R BL | R BL | R BL | R BI | R BI | R BL | R BL | R B! | R B | RB | RB | R B | R B | RE | R E | R E | RE | R E | R E | RE | RE | RB | R B | RB | RE | RE | RB | RE | RE | RE | RE | R E | R E | R E | R E | R E | R E | R E | R E | R I | R | R | R | F | F | F | F | F | ŕ | F | F | F | F | F | F | F | F | F | ŕ | ŕ | F | i | į | ŕ | ŕ | i | i | | - | Ε | È, | PE | PE | " PE | " PE | _ " PE | _ " PE | " PE | " PE | " PE | " PE | <u>0</u> PE | 30 " PE | | | ; <u>30</u> PE | √G <u>30</u> " PE | ING 30 " PE | LLING | ALLING " PE | FALLING 30 "PE | FALLING 30 "PE | I. FALLING 30 "PE | π . Falling $\frac{30}{}$ " PE | WT. FALLING 30 " PE | . WT. FALLING | b. WT. FALLING | Ib. WT. FALLING 30 " PE | _ lb. WT, FALLING | 40 lb. WT. FALLING 30 " PE | 140 lb. WT. FALLING | 140 lb. WT. FALLING 30 "PE | 140 lb. WT. FALLING | 140_ lb. WT. FALLING | 1 140 Ib. WT. FALLING 30 "PE | ITH140 Ib. WT. FALLING " PE | WITH 140 Ib. WT. FALLING 30 "PE | WITH 140 Ib. WT. FALLING 30 "PE | _" WITH <u>140</u> Ib. WT. FALLING <u>30</u> " PE | " WITH140 Ib. WT. FALLING30" PE | 2" WITH140Ib. WT. FALLING30" PE | 12 " WITH 140 Ib. WT. FALLING 30 " PE |
| 9 | : | RB | R BL | R BL | R BL | R BL | R BI | R BI | R BL | R BL | R B | R B | RB | R B | RB | R B | RE | R E | R E | RE | RE | R E | RE | RE | RB | R B | RB | RE | RE | RB | RE | RE | RE | RE | RE | R E | RE | RE | RE | R E | R E | R E | R | R | R | R | F | F | F | F | F | i | F | F | F | F | F | F | F | F | F | ŕ | ŕ | F | 1 | i | i | i | | | : | | Ę | ? | PĘ | P | " PE | ." PE | _" PE | _ " PE | " PE | " PE | " P | " PE | 0 " PE | 30 " PE | | | ; <u>30</u> " PE | √G <u>30</u> " PE | .ING " PE | LLING <u>30</u> " PE | ALLING 30 "PE | FALLING 30 "PE | FALLING 30 "PE | I. FALLING 30 "PE | T. FALLING $\frac{30}{}$ " PE | WT. FALLING 30 " PE | . WT, FALLING | b. WT. FALLING 30 " PE | Ib. WT. FALLING 30 " PE | Ib. WT, FALLING | 40 lb. WT. FALLING " PE | 140 lb. WT. FALLING 30 " PE | 140 lb. WT. FALLING 30 " PE | 140Ib. WT. FALLING | 140_ lb. WT. FALLING | 1 140 Ib. WT. FALLING 30 " PE | TTH140 Ib. WT. FALLING " PE | WITH 140 Ib. WT. FALLING 30 "PE | WITH 140 Ib. WT. FALLING 30 "PE | _" WITH <u>140</u> Ib. WT. FALLING <u>30</u> " PE | " WITH140 Ib. WT. FALLING30" PE | $\frac{2}{2}$ " WITH $\frac{140}{2}$ Ib. WT. FALLING $\frac{30}{2}$ " PE | 12 " WITH 140 Ib. WT. FALLING 30 " PE |



Test Borings and Logs

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(, , ,

MONITORING

| WELL | <u>OW-41-85</u> | continued | |
|------|-----------------|-----------|--|
|------|-----------------|-----------|--|

SURF. ELEV.

| 1E85 | c | | | | | | | agara Falls, New York | | · · · · · · · · · · · · · · · · · · · |
|---------------|--------------|-------------|-----------------|--------------|-----|-----------|------|---|-------|---------------------------------------|
| CLIENT | | GEX | MR | ANS | /EP | A a | nd D | | | COMPLETED 4/2/1 |
| | | | | | | | | Sampled to refu | sal l | 1/26/85 |
| DEPTH feet | IMPLE NO. | 1 V | | DWS AMPLI | | N | REC | DESCRIPTION & CLASSIFICATION | WELL | WATER TABLE & REMAR |
| feet | 3 | /f | /12 | /18 | /24 | | | | | |
| | 4 | | | WR | | WR | 22" | Extremely moist reddish brown | | 2½ hours |
| | | | | | 4 | | 1 | gravelly loam (SAND-SILT-CLAY) | | core run |
| | 5 | 28 | | | | | Î | with 15 to 40% mostly subangular | | Little wa |
| | | | 38 | | | | | \ dolomitic gravel, soft, massive | | return ru |
| | _ | | | | | 67 | | `soil structure, (ML-CL) | | |
| | | | | 29 | | | 17" | clear transition to- 36.0 | | Noticed a |
| | | | | | 44 | \vdash | } | Extremely moist brown gravelly | | 4 inches |
| | 5 | 15 | | | | | } | loam (SANDY-SILT) with 15 to 40% | | mostly Po |
| | | | 23 | | | | ۷., | mostly subangular dolomitic gravel | | land ceme |
| | | | | 10 | 0/3 | <u>5"</u> | * | and occasional cobble, very dense, | | grout cut |
| 40 | | | | | | | - | massive soil structure, (ML) 39.3 | 4 | with 15 t |
| | | | | | | | | Advanced augers in bedrock 0.5 | | 39.7 mostly su |
| | | | | | | | | feet. 39.7 | 1 | ular dolo |
| | | | | | | - | | Dolomite, brownish gray, | 1 | and trace |
| | - ! - ! | | | | | | | hard, fine grained, thinly | | dish brow |
| | | | | | | | | bedded, horizontal carbon- | | shale and |
| | R | ן אנ | #1 | | | | | aceous shale partings spaced | Le | granitíc |
| | | . | Ì | | | | | 13-5 inches, noticed a verti- | hole | vel witho |
| | | | | | | | | cal joint from 41.4 to 42.4 | i i | grout as |
| | - | | i | T. | | — | | feet, slightly pitted below | core | layer in |
| | | | | | | | | 40.8 to 42.4 foot depth 42.4 | ၂ ဦ | run #2. ' |
| , . | | | | | ! | | | Dolomite, gray to grayish | 1 | is not com |
| 45 | | | | | - | | | brown, hard, fine grained, | open | ered part |
| | $ \psi $ | | | | | | | thinly bedded, horizontal | do | recovery. |
| | 个 | | | _ | | | | partings spaced from ½-8 | ! | |
| | Ti | | | | | | | inches, little to some sele- | XX | *Recovere |
| į | \Box | T | | | | | | nite in partings, noticed a | | inches. |
| | + | JN : | ורע | | | \dashv | \ | seam of selenite 1/8 inch at 42.4 foot depth, some coarse | | , |
| | - KL | | i Z! | _ | | | 1 | | | Recalibra |
| | - ! ! | | | | | | Ι, | silty material noted in parting at 47.4 feet (pro- | | water los: |
| 1 | | | | | | | `\ | | | Run #1-82 gal. |
| | | | | | | | ` | bably grout) with horizontal | | Run #2-88 gal: |
| | 个 | | Ī | Ī | | | | \ shale partings below 43.7 | | Roller coring |
| 50 i | ! | i | T | 寸 | | \neg | | \feet, some selenite also \present | | ll gallons |
| | | i | - i | 1 | 1 | | | 1grades down to46.6_ | | |
| - | 1 | IN # | 2 | · | | \dashv | | grades down to | | • |
| - | - K | 114 1 | اد : | | | | | , | | DDD |
| | | | | | | \Box | | See next shect. | | 00041 |
| | | | | | | | | ′ | | Continued on |
| Ī | П | | T | | | | | | | sheet 3. |

N = NUMBER OF BLOWS TO DRIVE _____ " SPOON ____ 12 " WITH ____ 140 Ib. WT. FALLING ____ " PER BLOW.



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| IONI | T | 0 | R | Ι | N | G |
|------|------|---|---|---|---|---|
| | T. ? | _ | т | T | | |

OW-41-85 continued

SURF. ELEV.

PROJECT

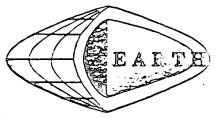
102nd St. Landfill well install. LOCATION West of OW-40-85

Buffalo Avenue, Niagara Falls, NY

1E85d GEOTRANS/EPA and DOJ DATE STARTED 11/15/85 COMPLETED 4/2/86 CLIENT Sampled to refusal 11/26/85 BLOWS ON DEPTH WON SAMPLER DESCRIPTION & CLASSIFICATION WELL WATER TABLE & REMARKS feet Dolomite, brownish gray, hard Core and water flow dramatically medium grained, thinly bedded, reduced while shale partings spaced 3-33 coring run #3, in op) with little selenite in partpart possibly by ings, noticed interbedded X 0 part of the gas 55 selenite in interval from 46.6-48.9 feet, also pitted to preventer flap slightly vuggy, noticed coarse breaking and becoming silty material in partings from 46.6-48.2 feet (probably lodged 5 feet over core barrel. 48.8 (arout Dolomite, gray, hard, medium Good water return on grained, thinly bedded, shale run #4. partings spaced 1/2-8 inches throughout run with trace coarse silty material in partings (probably grout) RUNLENGTHIREDYEY RQD Dolomite, brown to brownish 39.7gray, medium grained, thinly 45.7 100% 49€ bedded, horizontal and verti-45.7cal partings spaced 1-6 inches 20€ 149.0 91 % with abundant selenite in 49.0partings, little to some shale 53.3 +100% 438 also in partings, slightly 53.3pitted below 54.2 foot depth 55.3 100% 30€ Noticed some grout Coring completed at 55.3 feet. cutting with 10 to 20% 65 clean without grout smear gray subangular dolomitic gravel top core run #2, to a lesser degree run #3. 000414

| N = NUMBER OF BLOWS TO DRIVE | " SPOON | " WITH_ | 140 lb. WT. FALLING | 30 " PER BLOW |
|------------------------------|---------|---------|---------------------|---------------|
| | | | _ | |

70



Test Borings and Logs
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PROPOSED MONITORING

<u>OW-4</u>2-86

SURF. ELEV.

WELL 102nd St Landfill well install. LOCATION Approx. 8.0 feet south of rig **PROJECT** Niagara Falls: NY 1E85a CLIENT DATE STARTED 3/10/86 COMPLETED 3/11/86 CEOTRANS/ERA and DOIL BLOWS ON SAMPLER NAMPE Teet WELL REC DESCRIPTION & CLASSIFICATION WATER TABLE & REMARKS /12/16/ Augered to 3.0 foot depth Gravel rip rap through gravel rip rap with 14 inch hollow stem augers 8½ inch 46 inside diameter Extremely moist mixed reddish before sampling. brown and dark brown silty 128 16"\ Gravel to 3.0 43 clay loam (CLAYEY-SILT) with +|feet over soil abundant fine and medium 38 ofill to 3.5 feet size roots (CL) 2 31 Hover mostly Moist light grayish green 0.03 demolition debri sand and gravel size unknown to 6.0 feet over 18.1 fill material, possibly organic muck to 8.0 feet over 7 decomposed concrete, with 9 occasional gravel size shell coarse silty
alluvial sedimen
to 16.5 feet
over mostly fine
sand with little coarse silty fragments 8 Wet black (MUCK) with abun-2 dant fine and medium size 2 12" roots and wood fibers, strong organic odor, very loose, ocoarse silt allu-2 (OL) vial sediment to Wet distinctly mottled dark 되20.0 feet over gray silt loam (SANDY-SILT) water sorted and deposited mostly with very fine to fine size 14 3 21 sand, with thin black (MUCK) psand and gravel interbeds <1/16" thick be-Hto 26.5 feet ove: 21 tween 8.0 to 9.0 foot depth, Water sorted and 3 | with fine size root fibers deposited fine oriented vertically, very Usize sand, little loose, massive soil strucmisilt to 27.0 fee ture, (ML) WH r - -grades downward to $\frac{16.5}{1}$ **WH** 11" over water sorted and deposited /Wet dark gray fine sandy loam fine size sand 6 IWR /(SILTY-SAND) with fine to and gravel to 2 | 18" / medium size sand some silt,

> trace very fine root material, tends to liquify when

disturbed, loose, (SM)

28.0 feet over

Continued on

sheet 2.

3

6 4



Test Borings and Logs

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PROPOSED MONITORING

WELL - _ OW-42-86

SURF. ELEV.

1E85g

CLIENT

PROJECT 102nd St. Landfill well install. LOCATION Approx. 8.0 feet south of r

Buffalo Avenue, Niagara Falls, NY

CECTRANS/EPA and DOJ

DATE STARTED 3/10/86 COMPLETED 3/11/86

| | 2 | SAMPLE | | REC | | WELL | |
|---------------|---------------|--------|---------|-----|--|-------------------|--|
| DEPTH feet | \$ 2 0 / 6 | - A | 15/24 N | REC | DESCRIPTION & CLASSIFICATION | W221 | Water table & Demarks |
| | 6 3 7 WR | IR. | WR | | Wet dark gray fine sandy loam (SILTY-SAND) with fine to medium size sand some silt, trace very fine root mater- | | assumed bedro |
| | 8 6 | WR | VR | 0 | ial, tends to liquify when disturbed, loose, (SM) 20.0 | out. | WR-Sampled with weight of rods |
| | 7 | 8 | 15 | 23" | `grades downward to Wet dark gray sandy loam (SILTY-SAND) with 5 to 15% medium to coarse size sub- | lled. nite gr | WH-Sampled with weight of rods and hammer. |
| | 8 14 2 9 3 | 0 | | | rounded gravel, with medium to coarse size sand, some silt, with occasional fine size shell fragments through- | insta bento | Samples 1,3,5 and 9 with 2' by 2" sample |
| :5 | 10 6 | 3 | 7 | 12* | out, compact, (SP) grades downward to- Wet dark gray very gravelly loamy sand (SAND) with 30 to | No well cement | spoon. Samples 2,4,6 and 10 with 3 by 3" sample |
| | 1030 | 14 | 23 | 19" | 50% fine to medium size sub- rounded gravel, medium to coarse size sand, loose, stratified, (SP-GP) 26.5 Wet dark gray fine sandy | r 11ed with | spoon. Note - HNU readings Inte |
| | 11100/ | | | | loam (SILTY-SAND) with 2 to 10% coarse gravel, little silt, dense, thinly bedded, (SM) 27.0 | backfil | 20-23 feet. HNU=0 25-28 feet=2p |
| ვე | | | | | Wet grayish brown gravelly sandy loam (SILTY-SAND) with 15 to 40% fine to coarse size mostly subrounded gravel, fine to coarse size sand, little silt, very dense in | Water feet | table at 21.0 below surface etion. |
| | | | 1 | | place, loose when disturbed, stratified, (SW) *possible clorobenzene contamination29.0 Refusal at 29.0 feet. | ! | |
| 25 | | | | · | Abandoned hole, grouted to surface. | | 000418 |



Test Borings and Logs

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| • | winner, |
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| B |)R | Ē, |
|-----|----|----|
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Ow-43-85

GEOTRANS/EPA and DOJ

SURF. ELEV.

PROJECT

162nd Street Landfill well installation LOCATION About 15 feet NNE of Ow-34-85

1E85d CLIENT

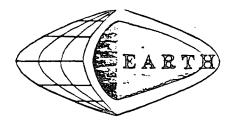
Buffalo Avenue, Niagara Falls, New York

DATE STARTED 12/3/85 COMPLETED 12/5/85

| | | | | | ON | | | | |
|--|--|--|--|--|----------------|--|-----|---|--|
| рерт н feet | SAMPI NO. | 1/6 | | 12/ 2 / 1 | 1 17/2 | N N | REC | DESCRIPTION & CLASSIFICATION | WATER TABLE & REMARKS |
| | | <u> </u> | | 1 | Ť | 1 | | | |
| | | | | | Ī | |] | | |
| | | | | | | | _ | | |
| | | <u> </u> | <u> ·</u> | 1 | <u> </u> | <u> </u> | 4 | | |
| ······································ | <u> </u> | | - | | | <u> </u> | 4 | · | |
| | - | | - | + | +- | +- | - | No samples taken between 0 and | |
| | - | 1 | 1 | +- | + | | - | 15.0 foot depths, refer to OW- | Augered through hard |
| | - | ' | | + | | | - | 34-85 for description of fill | debris from 5.0 to |
| 5 | | - | | +- | + | 1 | 1 | and alluvial sediments above 15.0 foot depth. | 10.0 f∞t depth. |
| | | | İ | Ť | | † - | 1 | Tool deput. | |
| | | | | | | | | | REC - Recovery |
| | | | | | | |] | | |
| | | | | | | | | | Auger width 7 inches inside diameter 3 3/4 |
| | i | <u> </u> | <u> </u> | | - | +- | | | inches. |
| | <u> </u> | - | | - | - | - | - | | |
| | | | - | + | 1_ | - | _ | | |
| | <u> </u> | | | | + | † | - | | |
| 10 | | | | 1 | 1 | | 1 | | |
| | | | Г | \top | i | İ | 1 | | |
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| | | | | | 1 | <u> </u> | _ | | |
| | | | <u> </u> | | - | | | | |
| | | | _ | - | +- | | - | Extremely moist dark gray silt | |
| | | | _ | <u>!</u> | + | 1 | - | loam (CLAYEY-SILT), firm, weak | |
| 15 | | | <u> </u> | | | 1 | - | thinly laminated, with high | |
| <u>رہ ــــــــــــــــــــــــــــــــــــ</u> | | 2 | | | | i | 1 | component brown organic fiber oriented horizontally, (ML) | |
| ļ | | | ذ | i | ì | Ì | 1 | clear transition to - 15.5 | |
| | | | - | 4 | İ | 7 | 17" | | |
| ' | | | | | 15 | ļ | | See next sheet | |
| 1 | 2 | E, | | | 1 | 1 | 7 | | Continued on sheet 2. |

N = NUMBER OF BLOWS TO DRIVE 2 "SPOON 12 "WITH 140 Ib. WT. FALLING 30

___ " PER BLOW.



Test Borings and Logs East Aurora, New York 14052 • (716) 655

BORE

HOLE NO. OW-43-85 continued

PROJECT 102nd Street Landfill well installation LOCATION About 15 feet NNE of Ow-34-85

1E85a | Buffalo Avenue, Niagara Falls, New York

| | - L | | | OWS | | | | DESCRIPTION & CLASSIFICATION | |
|---------------|--------|----------|--|--|--------------|-------|-------|---|--------------------------------------|
| feet s | SAMPLE | 0/ | 1/12 | 12/ | 1h/24 | ^ | REC | DESCRIPTION & CLASSIFICATION | WATER TABLE & REMARKS |
| | 2 | L. | 6 | <u> </u> | <u> </u> | 12 | 1 | Wet dark gray silt loam (SANDY- | |
| | | | | 16 | | 12 | 12" | | |
| | | | | | 17 | | | occasional brown organic fiber | sediment to 18.0 |
| | 3 | 13 | | 1 | $oxed{oxed}$ | | 1 1 | oriented horizontally, (ML)grades downward to 18.0 | over coarse silt fine size sand t |
| 20 | | | 3 | | | | | Wet dark gray fine sandy loam | 22.0 feet, incre |
| | | | | 2 | | 5 | 10" | (SILTY-SAND), mostly medium and | in gravel to 22. |
| | | ļ | | | 3 | | | fine size, loose, thinly bedded, | feet over fine t |
| | | ٤ | | | | | | with occasional thin brown fine | medium size sand |
| | | | 6 | | | | | organic fiber oriented horizon- | coarse silt allu |
| | | 1 | | ٦ | 1 | 11 | 12" | tally, readily liquifies when | sediment to 23.0 |
| | | | | | 6 | | | disturbed, (SM,ML) clear transition to | over very fine s and coarse silt |
| | E | 5 | | Ī | | | | Wet gray gravelly sandy loam | alluvial sedimen |
| | | <u> </u> | 7 | i | | | | (SILTY-SAND) with 15 to 30% | 29.0 feet over w |
| | | | | - | İ | 15 | ייכו | mostly fine size rounded gravel, | sorted and depos |
| 25 | | <u> </u> | | 1 | 0 | | 12" | . \ loose weakly stratified mostly | mostly sand and |
| 54 | 6 | 3 | | i | | | | medium to coarse size sand, (SM) | gravel to 30.5 f |
| | 0 | - | 5 | | | | | \ clear transition to | over loamy graci |
| | | <u> </u> | | 1 7 | - | 12 | | \ Wet gray sandy loam (SILTY-SAND), | till to 40.5 fee |
| | | <u> </u> | i - | Í | 0 | | 24" | \ loose, mostly fine to medium size \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | over clayey lake sediment to 41.5 |
| | 7 | 5 | İ | | 1 | | | | feet over water |
| | | - | 1 6 | | | | | 'liquifies when disturbed, (SM) clear transition to -23.0 | sorted and depos |
| | | | 6 | | - | 14 | 10" | Wet gray very fine sandy loam | sand to 43.0 fee |
| | | 1 | 1 | 8 | | | πο | (SANDY-SILT), loose weak thinly | over loamy glaci |
| | | | 1 | ! | 16 | | | bedded, some coarse silt, readily | |
| | 8 | 5 | | | | | | liquifies when disturbed, (ML) | |
| _3 <u>0</u> _ | | | 5 | 1 | | ا و ا | ا "در | | |
| , | | | <u> </u> | 4 | , | | | Wet gray gravelly (SAND) with 15 | |
| | | | | ! | 4 | | | to 40% mostly fine size gravel, medium size sand, loose, weakly | |
| | a | 29 | - | <u> </u> | | | | stratified, with broken shells, | |
| ļ | | | 3 1 | <u> </u> | | 35 | | (SP) 30.5 | |
| | | | <u> </u> | 7 | 1 | | | | |
| | | | | <u></u> | 13 | | 13" | Extremely moist pinkish brown | |
| | 20 | 6 | | | | | } | gravelly loam (SAND-SILT-CLAY) | |
| | | | 11 | | | _ر] | | with 15 to 40% mostly subangular | |
| | | | | 25 | | 26 | | dolomitic gravel, hard, massive | 000418 |
| 35 | | | | | h -> | | | soil structure, (ML) | Continued or sheet |

parse silty alluvi ediment to 18.0 fe ver coarse silt ar. ine size sand to 2.0 feet, increasi n gravel to 22.5 et over fine to edium size sand an parse silt alluvia. ediment to 23.0 fe ver very fine sand nd coarse silt lluvial sediment t. .0 feet over wate: orted and deposited ostly sand and ravel to 30.5 feet ver loamy glacial ill to 40.5 feet ver clayey lake ediment to 41.5 et over water orted and deposited and to 43.0 feet ver loamy glacial ill to refusal.

000418 Continued on sheet 3

| N = NUMBER OF BLOWS TO DRIVE | 2 | _" SPOON _1 | " WITH_ | 140 | Ib. WT. FALLING | _30 | " PER BLOW. |
|------------------------------|---|-------------|---------|-----|-----------------|-----|-------------|
|------------------------------|---|-------------|---------|-----|-----------------|-----|-------------|



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| \sim | ٠, | _ |

| HOLE | NO. | OW-43-85 | _continued |
|------|-----|----------|------------|
|------|-----|----------|------------|

SURF. ELEV.

| PROJECT 1E85d | | Landfill well insta e, Niagara Falls, N | | out 15 feet | NNE of Ow-34-85 |
|------------------|--|--|---|--|-----------------------|
| CLIENT | GEOTRANS /EPA | and DOJ | DATE STARTED | 12/3/85 | COMPLETED 12/5/85 |
| DEPTH S | BLOWS ON SAMPLER 0 6 12 12 15 17 18 | REC DESCRIPTION | N & CLASSIFICATION | | WATER TABLE & REMARKS |
| | 1 7 8 21 2 20 17 | 4" gravelly with 15 to dolomitic soil structure. | moist pinkish brow loam (SAND-SILT-CLA o 40% mostly suband gravel, hard, mass cture, became softe | Y) ular ive r be- | |
| | 23 66 55 3 3 3 1 | Noticed in | o and 36.0 foot depinerease in subangulelow 37.5 foot dept | ar | |
| | 38 5 15 53 17 17 17 17 17 17 17 17 | and pinkis (CLAYEY-S | moist alternating sh brown silty clay LT), thinly lamina thin coarse silt leads | ted | · |
| . 45 | 21 40 40 100/4" | very stifi Wet olive fine and r weakly sti lenses bei | | 41.5 AND), cose, silt P) 43.0 | |
| | | subangular gravel and | n 15 to 40% mostly r and angular dolom d occasional cobble e, massive soil str | , | 3 |
| 50 | | Refusal at | t 44.3 feet. | | |
| | | | | | 000419 |



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ONITORING

WELL

OW-45-86

SURF. ELEV. _

PROJECT Landfill well install. LOCATION Between Niagara River and 102nd St. OW-34-85 Niagara Falls NY 1E85g

2/11/86 COMPLETED GEOTRANS/EPA and DOJ CLIENT DATE STARTED Cored 4/2/86

| | ļ " | T | | BLC |)WS | ON | | Ī | | 1 | Cored 4/2/86 |
|-------|--------|---|---|-----|-----------|------|---|---|--|---------|--|
| DEPTH | SAMPLI | 0 | 6 | · / | 12/ 18 | 110/ | N | | DESCRIPTION & CLASSIFICATION | WELL | WATER TABLE & REMARKS |
| 6.0 | RL | | | 3 | | | | | Dolomite, brownish gray, hard, medium grained, thinly bedded, crushed broken dolomite-weathered between 47.4 to 47.9, 50.2 to 50.4, and 50.5 to 50.6 foot depth, with fragments .03 to 0.12', some vertical partings noticed in crushed breakage zones, with stromatolites found on fragments, numerous weathered partings spaced 1 to 3", stromatolites noticed in partings at 48.3 and 48.7 feet, shaly laminations noticed from 49.1 to 49.8, 50.0 to 50.2 and 50.6 to 50.8 foot depths grades downward to- 52.4 Dolomite, medium brownish gray hard, medium grained, thinly bedded, breakage zone noticed from 52.4 to 53.3 and 54.1 to 54.5 foot depths, horizontal partings every 2 to 3", slightly pitted from 51.3 to 153.8 with secondary calcite in lpits - clear transition to- 57.4 See next sheet. | WX oben | Water table at 12.5 feet at completion, 12.7 feet at 8:30 am 4/2/86, the morning following coring. Water loss into bedrock while coring. RUN# GALLONS 1 171 2 454 3 536 4 246 FOTAL 1407 er table at 12.5 the below surface at coletion of coring. |
| 7.0 | | | | | | | | | | | 000420 |

__ " SPOON __ - _ " WITH _ - _ Ib. WT. FALLING _ - _ " PER BLOW. N = NUMBER OF BLOWS TO DRIVE __ -3.7 3



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MONITORING

| WELL :OW-45-8 | įť |
|---------------|----|
|---------------|----|

SURF. ELEV. _

| PROJ | ECT |
|------|-----|
| TOE. | _ |

102nd St. Landfill well install. LOCATION Between Niagara River and

Buffalo Avenue, Niagara Falls, NY

OW-34-85

| CLIENT | GEOTRANS/EP | A and DOJ DATE STARTED 2/11 | 1/85 COMPLETED |
|--------------|----------------------------------|--|-----------------------|
| | | | Cored 4/2/86 |
| DEPTH FEET S | BLOWS ON SAMPLER 0 6 12 18 24 N | DESCRIPTION & CLASSIFICATION | WATER TABLE & REMARKS |
| 55 | | Dolomite, gray, some grayish brown, hard, medium grained, very thinly bedded, noticed breakage zone from 57.4 to 57.7 foot depth with some secondary calcite and stromatolites noticed on fragments, carbonaceous shale partings spaced to 3" with little to some calcite present, slightly pitted, noticed curved bedding | |
| 60 | | from 57.4 to 57.9 foot depth grades downward to59.5 Dolomite, brownish gray, moderately hard, medium to coarse grained, thinly bedded, vertical and horizontal joints noticed between 59.5 to 60.5 foot depth, with abundant calcite deposits along joints, pitted to vuggy, becoming vuggy below 60.6 foot depth, with calcite in vugs and pits 60.5 | |
| 6.5 | | Coring completed at 60.9 feet. | • |
| 70 | | | 000421 |

N = NUMBER OF BLOWS TO DRIVE ___ " SPOON __ _ " WITH _ _ Ib. WT. FALLING __ _ " PER BLOW.

helogged By Dale M. Grames (Gening st



PROJECT 102nd Street Landfill well installation LOCATION Near OW-31-85

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MONITORING

| WELL | OW-46-85 |
|------|----------|
| | |

SURF. ELEV.

| 185d | | | | | | | | agara Falls, New York | 7 /05 | | |
|---------------|----------|--------------|----------|----------|--|--|------|--|-------|--|--|
| CLIENT | | Œ | JIR | ANS | /EP | <i>P.</i> a | nd D | DATE STARTED | | COMPLETED | |
| | | | | | | | | Sampled to refusal 12/10/85. | Set | casing 12/10 to 12/ | |
| | <u>.</u> | £ . | | | OWS AMPL | | | D | | WELL | |
| DEPTH feet | S S S | U/6 | /12 | 12/ | 15/24 | N | REC | DESCRIPTION & CLASSIFICATION | WELL | WATER TABLE & REMARKS | |
| ļ | | <u> </u> | | <u> </u> | | | | | | Conservation laboration | |
| | | | <u> </u> | + | ┢ | 1 | 1 | | | Coarse silty lake iment to 15.0 feet | |
| | • | <u> </u> | \vdash | Ī | | | 1 | Augered to 13.0 feet without sam- | | over very fine sar | |
| | | Ī | | | | | 1 } | pling, refer to OW-31-85 for | | with some coarse s | |
| | - | | İ | i | i | | 1 | description of fill and lacust- | | to 20.0 feet over | |
| | | | | | | 1 |] | rine sediment above 13.0 foot depth | | clayey lake sedime to 26.5 feet over | |
| | | | | | | | | dcp a1 | | loamy reworked or | |
| | | | | | | |] | | | water laid glacial | |
| 5 | | i | | 1 | | | | | | till to 28.0 feet | |
| 1 | | <u> </u> | | 1_ | | <u> </u> | | | | over loamy glacial till to 34.0 feet | |
| ļ | | | | 1 | | - | | · | | clayey still water | |
| - | | ! | | 1 | <u> </u> | | | | | deposit to 34.5 fe | |
| - | | <u> </u> | | - | | | | | | over loamy glacial | |
| | | ! | | <u> </u> | 1 | | | | | till to 36.5 feet water sorted and | |
| - | | ! | | <u> </u> | <u> </u> | | { } | | | deposited mostly f | |
| - | | i | | <u> </u> | - | <u> </u> | | | | size sand, little | |
| Ė | | | | <u> </u> | | | | | | silt to 37.1 fect | |
| 10 | | | | | | | | | | fractured dolomite to 37.9 feet over | |
| 1 | | | | Ì | | 1 | | | | Lockport Dolomite. | |
| | - | | | | | | | | | - | |
| - | | | | <u> </u> | _ | | | | | REC-Recovery | |
| F | | <u> </u> | | | | <u> </u> | | Determole maint distinctive mat | | 7 | |
| 100mm 11 2mm | | | | | | İ | | Extremely moist distinctly mot- tled olive gray silt loam (SANDY- | | Auger width 12 inc inside diameter 62 | |
| - | 1 | WR | | Ì | İ | | | SILT), very loose, weak thinly | | inches. | |
| | | | WR | | | TATO | 15" | bedded with very thin 1/16" very | | | |
| | | | | WR | | WK | -5 | fine sand lenses (ML) | | | |
| 35[| | | | | 8 | | | grades downward to | | | |
| Ĺ | 2 | 5 | | | | | | Extremely moist distinctly mot- | | | |
| | | | 3 | | <u> </u> | 6 | 18" | tled gray very fine sandy loam | | | |
| - | | | | 3_ | | - | ±0 | (SANDY-SILT), loose, weak thinly | | | |
| | | | | <u> </u> | 4 | | | bedded with thin coarse silt lenses, (ML,SM) | | | |
| | 3 | WR | | | | <u> </u> | | | | Continued on sheet | |

N = NUMBER OF BLOWS TO DRIVE ____ " SPOON ___ 12 " WITH _ 140 | Ib. WT. FALLING 30



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(e. jug

MONITORING

| WEIL | <u>OW-46-85</u> | continued |
|------|-----------------|-----------|

SURF. ELEV.

| PROJECT | 102nd Street Landfill well installation | LOCATION Near Ow-31-85 |
|---------|---|-----------------------------|
| 1E85d | Buffalo Avenue, Niagara Falls, New York | |
| | | DATE OT 10750 20/0/05 20/05 |

CLIENT GPOTRANS/FPA and DOI DATE STARTED 12/7/85 COMPLETED Sampled to refusal 12/10/85. Set casing 12/10

| | ا | BLI Si | OWS ON AMPLER | i |] | President a charge carrier | | MATER TARIF A STATE |
|-----------------------|----------|---------------|------------------|--|------------------------|--|------|-----------------------|
| ре ртн fect | SAMO | $\frac{6}{6}$ | 12/15 | 24 N | REC | DESCRIPTION & CLASSIFICATION | VETT | WATER TABLE & REMARKS |
| | 3 | 3 | | $\frac{1}{6}$ | l _I 22". | Extremely moist distinctly mot- | | |
| | | | 3 | 10 | 22 | tled gray , very fine sandy loam | i | No chemical odor |
| | | | | | } | (SANDY-SILT, loose, weak thinly | | to black zone be- |
| | 4 | 3 | | | | bedded with thin coarse silt len- | l | tween 19.7 and 20. |
| 20 | | 2 | | | ' | ses, (ML,SM) 19.7 | 1 | f∞t depth. |
| | | | 2 | 4 | 9" | Wet black very fine sandy loam | 1 | |
| | | | : | 2 | Ì | (SANDY-STIT), very loose, weak | ļ | |
| | E, | WR | | | 1 ! | thinly bedded, (ML,SM) 20.0 | 1 | |
| | | WR | | | i . | Extremely moist grayish pink | - 1 | |
| | | 1 | | - | | (SILTY-CLAY), very soft, weak | | |
| | | | 1 1/h 2 | | 16" | thinly laminated with very thin | 1 | |
| | | | 1 12 | ''' | 10 | coarse silt lenses, (CL) | Ì | |
| | 6 | WR | | - | | | | _ |
| | | WR | | _ | | Noticed orangish red interlayer | 1 | |
| ! | | | 11/ | | 17" | 3 inches thick 24.0 - 24.3 foot | | |
| 25 | | | / <u>h</u> 2 |) " | | depth, and interlayered <1 inch | 1 | |
| | 7 | WR | | | | thick below 25.0 feet | 1 | |
| | | WR | | 1 | | grades downward to | | |
| | | | WR | | 18" | | I | |
| | Ì | | 1 6 | ; | | loam (SAND-SILT-CLAY) with 15 to | - | |
| | ε | WR: | | Ī | | 40% mostly subangular dolomitic | 1 | • |
| | | WR | | | | gravel, very soft, weak thinly | } | |
| | | | 12 | - | 13" | laminated, with little fine to | - 1 | |
| - | | | | 3 | 13 | medium size sand, (ML-CL) | [| |
| i | | | 1 2 | / 3 | | clear transition to- | | |
| 3 n | | 23 | ! ! | | | moist reddish brown gravelly clay |] | |
| 30 | | 24 | | -¦ 65 | | loam (SAND-SILT-CLAY) with 15 to | | |
| ļ | | | 41 | | 12" | 40% mostly subandular dolomitic | - 1 | |
| | | | 5 | 0 | | gravel and occasional cobble, | | |
| | <u> </u> | 27 | | | | hard with brittle consistence, | 1 | |
| | - | 45 | | 22 | 3.08 | massive soil structure, (Mi-CL) | | |
| İ | | | 38 | 7 83 | 18" | grades downward to | | |
| | İ | | 53 | | | Moist reddish brown gravelly loam | | |
| | 77 | 20 | | | | (SAND-SILT-CLAY) with 15 to 40% | | |
| | <u> </u> | 20 | | + | | mostly subangular, dolomitic gra- vel and occasional cobble, hard | | |
| } | | 20 | 1 | - 25 | 22" | with brittle consistence, massive | | |
| | . ! | | 15 | 1 | 22 | soil structure, (MI-CL) 34.0 | | |

000420

| N = NUMBER OF BLOWS TO DRIVE | 2 | _ " SPOON | 12 | " WITH 140 | lb. WT. | FALLING | _30 | " PER BLOW. |
|------------------------------|---|-----------|----|------------|---------|---------|-----|-------------|
|------------------------------|---|-----------|----|------------|---------|---------|-----|-------------|



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Puliminary

MONITORING

WHILL

OW-46-85

als LOGGED BY Donald W. Owens/Soil Scientist

SURF.

(injury

| PROJE | | | | | | ll well installation LOCATION <u>Near</u> | OW-31- | <u>85</u> |
|----------------------|---------------|---|------------------|-----|-----|--|---------------------------------------|--|
| CLIENT | | GEOTR# | | | | J DATE STARTED 1: | | |
| | | | | | | Sampled to refusal 12/10/85. Set | casino | 12/10 to 12/11/85. |
| рертн feet | SAMPLE NO. | S 6 12 | OWS ON AMPLER | / . | REC | DESCRIPTION & CLASSIFICATION | WELL | WATER TABLE & REMARKS |
| e dan salaman 1888 | 13 | 15 26 100 /4" | 100/3 | | 9" | Extremely moist alternating very thin coarse silt lenses and grayish pink (SILTY-CLAY), very stiff, thinly laminated with very thin coarse silt lenses, (CL)34. Extremely moist brown gravelly loam (SAND-SILT-CLAY) with 15 to 40% mostly subangular dolomitic gravel and occasional cobble, hard with brittle consistence, [ML) - grades downward to -36.5 Wet brownish gray fine sandy load (SILTY-SAND), compact in place, weak thinly bedded, (SM) clear transition to 37.1 Wet gray angular mostly dolomitic gravel, loose in spoon grades downward to -37.9 | , , , , , , , , , , , , , , , , , , , | Part of split spoon sample #13 consiste of plug from inside the hollow stem augers. Sample #14 obtained from 37.6 to 37.9 foot depth. Augered to 38.6 fee Bottom of casing 38.6 foot depth. |
| 50 | | | | | | | | |
| | | | | | | | | 000424 |

N = NUMBER OF BLOWS TO DRIVE 2 "SPOON 12 "WITH 140 Ib. WT. FALLING 30 "PER BLOW.

CHEEL 3 VE 3



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MONITORING

| WELLOW-46-85 | continued |
|--------------|-----------|
|--------------|-----------|

SURF. ELEV.

| 1E85d | Buffalo Ave | | ill well install. LOCATION <u>Near OV</u> <u>Niagara Falls.</u> New York | | |
|---------------------|----------------------------------|--------|---|----------------|--|
| CLIENT _ | GEOTRANS/EP | | | | |
| | | Sar | mpled to refusal 12/10/85. Set o | casing | g 12/10 to 12/11/8 |
| DEPTH feet solution | BLOWS ON SAMPLER 6 6 12 16 18 N | REC | DESCRIPTION & CLASSIFICATION | WELL | WATER TABLE & REMARKS |
| 13 | 100/4" | 9" <1" | Extremely moist alternating gray and grayish pink (SILTY-CLAY), very stiff, thinly laminated with very thin coarse silt lenses, (CL) 34.5 Extremely moist brown gravelly loam (SAND-SILT-CLAY) with 15 to 40% mostly subangular dolomitic gravel and occasional cobble, hard with brittle consistence, (ML) 36.5 Wet brownish gray fine sandy loam (SILTY-SAND), compact in place, weak thinly bedded, (SM) -clear transition to 37.1 Wet gray angular mostly dolomitic gravel, loose in spoon grades downward to 37.2 Grout and gravel 38.3 Dolomite, gray, hard, medium grained, thinly bedded, noticed vertical parting at 38.3 foot depth filled with selenite, slightly calcarous shaly laminations, spaced to 4 inches grades downward to 39.4 Dolomite, medium brownish gray thinly bedded, shale partings spaced 1-5 inches, slightly spitted from 39.4 to 39.7 foot bepths 1 grades downward to -41.4 Dolomite, medium gray, hard, fine grained, thinly bedded, shale | open core hole | Part of split spoon sample #13 consisted of plus from inside the hollow stem auge Sample #14 obtained from 37.6 to 37.9 foot depth. Augered to 38.6 foot depth. Water table 15 minutes after copletion 11.7 fee below surface. Water table 25 minutes after copletion 11.7 fee below surface. |
| 3 | | | laminations spaced 3-3 inches, noticed thin selenite seams below 41.7 foot depth grades downward to -42.2 | XX | Continued on sheet 4. |
| | [] | | | | |

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MONITORING

| WELL | OW-46-85 C | ontinued | SURF. ELEV. |
|------------------|---------------|--|-----------------------|
| PROJECT 1E85d | -Buffale Aven | ndfill well install. LOCATION Near Of ue, Niagara Falls, NY | |
| CLIENT | | mpled to refusal 12/10/85. Set cas | |
| DEPTH WYS | | DESCRIPTION & CLASSIFICATION | WATER TABLE & REMARKS |
| 55 | | Dolomite, gray, hard, fine grained, thinly bedded, shale partings, noticed curved cross bedding at 42.8 foot depth, slightly pitted at 42.5 foot depth 43.1 | • |
| | | Dolomite, gray, hard, medium grained, thinly bedded, abundant pits from 43.1 to 44.1 foot depth, noticed shale parting at 43.7 feet filled with coarse silty calcarious material with fine shale fragments | |
| 60 | | Dolomite, brownish gray, fine to medium grained, thinly bedded, with shaly laminations, shale partings spaced 1-5 | |
| | | inches, filled with selenite to 46.8 feet, noticed selenite seam 1/8 inch thick at 47.0 feet, noticed fine vertical shaly lamination between 48.5 and 49.5 foot depthgrades downward to -50.2 | |

Coring completed at 53.2 feet.

some selenite in bedding

Dolomite, mostly gray to brownish gray, hard, medium grained, numerous weathered calcarious shale partings, noticed selenite seam <1/8 inch thick below 52.0 foot depth, noticed curved bedding below 52.8 feet with

| N = NUMBER OF BLOWS TO DRIVE | 2 | _ " SPOON | 12 | " WITH | 140 | Ib. WT. FALLING | 30 | " PER BLOW |
|------------------------------|---|-----------|----|--------|-----|-----------------|----|------------|
|------------------------------|---|-----------|----|--------|-----|-----------------|----|------------|



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Pulinunary

MONITORING WELL

OW-47-85

SUR

DATE STARTED 12/12/85 COMPLETED 12/14/85 CLIENT GEOTRANS/EPA and DOJ BLOWS ON SAMPIE NO. DESCRIPTION & CLASSIFICATION WATER TABLE & REMARKS DEPTH TREC WELL Industrial wast fill to 10.5 Auger debris consisted of mostly extremely moist dark gray to feet over silty black flyash, coarse silt to fine alluvial to 11. size sand feet over coars alluvial to 17.0 feet pipe over water sort: and deposited Extremely moist mostly dark gray mostly fine size steel cinders, silt to gravel size with sand with some 6 10" ome red broken brick fragment coarse silt to 9 and wood chips, loose 26.0 feet over diameter black bentonite 5 - - clear transition to - - $6 \cdot 0$ water sorted and 2 Q deposited mostly Wet mostly dark gray with white medium and fine below 7.0 feet mostly cinders 10" 114 size sand to 30. and slag, silt to gravel size, feet over water mixed with brine sludge below 3 sorted and de-8.0 feet, compact posited sand and - - - - clear transition to gravel to 33.0 3" 2 Wet mostly dark gray cinder, sand feet over clayey and gravel size with unknown 10.0 bke sediment to 0.0 fiberous material, very loose end of boring. (1) 4 2 10.5 Extremely moist dark brown to 12" 7 black silt loam (CLAYEY-SILT), Sampler resoft, with fine brown decomposed 6 12.0 bounded as if organic fiber oriented horizon-E, penetrating tally, and very fine roots, 11.d pack rubber at 9.8 (ML-CL) grades downward to - -8 12" foot depth. Extremely moist dark brown silt sand Difficult loam (SANDY-SILT), loose, with augering from some vertical roots and fine 9.8 to 10.0 foot depth. 9.8 to 10.0 organic fiber mostly oriented 11" flat and horizontally, with very thin fine sand lense, (ML) C increasing in fine sand content below 14.0 foot depth - - - grades downward to -14"

N = NUMBER OF BLOWS TO DRIVE ____ "SPOON _____ "WITH _____ ID. WT. FALLING _____ OPER BLOW."



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MONITORING

CLIENT

| WELL | <u>0~-47-85</u> |
|------|-----------------|
|------|-----------------|

SURF. ELEV.

102nd Street Landfill well installation LOCATION Adjacent to OW-36-85 **PROJECT**

Buffalo Avenue, Niagara Falls, New York 1E85d

GEOTRANS/EPA and DOJ

DATE STARTED 12/12/85 COMPLETED 12/14/85

| рерт н feet | FIE. | | BLOWS ON SAMPLER | | | | | | WELL | WATER TARIE & REMARKS |
|-----------------------|-------|-----|---------------------|--|--|-----------|--------------|---|----------------|-----------------------|
| | SAM H | 0/6 | 6/12 | 12/ / 18 | 1h/24 | 8 | REC | DESCRIPTION & CLASSIFICATION | WELLL | WATER TABLE & REMARKS |
| | 7 | | | <u> </u> | 7 | | | Extremely moist dark brown silt | i i | |
| | 8 | WR | | | | | | loam (SANDY-SILT), loose with | 4 | Used 9 gall |
| | | | 1 | | | | | some vertical roots and fine organic fiber mostly oriented | steel pip | of water to |
| | | | | 2 | | 3 | 10" | , flat and horizontally, with very | S. S. | install wel |
| _20_ | | | | | 3 | | | thin fine sand lenses, (ML) | 성 | Strong chem |
| .5-54 -5-25 | ٥ | J | | ļ | | | | \ increasing in fine sand content | diameter black | cal odor to |
| | | | 3 | | | 7 | 11" | below 14.0 foot depth 17.0 | | sample 15, |
| | | | | 4 | | | - | ' grades downward to | [E | noted most |
| | | | | | 13 | | | | 9 | brown oily liquid to |
| propressor 44 m | 10 | WR | | | | | | Wet dark gray fine sandy loam | | sample. Ha |
| | | | 2 | <u> </u> | <u> </u> | 6 | 8" | (SILTY-SAND), loose, weak thinly | 1 1 | to assess |
| | | | | 4 | | | _ | bedded, (SM) | Pig | liquid had |
| | | | | | 7 | ! | | | T T | penetrated |
| | 11 | _5 | | | | | | | inch inside | clays. |
| 25 | | | 10 | | | ا 1 20 | 11" | |) CT | |
| | | | | 10 | | 20 | | | Q | |
| | | | | | 8 | | | $-$ grades downward to - $\frac{26.0}{}$ | ₹ | |
| | 12 | 6 | | | | | | grodes downward to | | |
| | | _ | 6 | | | ا 16 ا | 8" | Not many loams cand (CAND) loads |]] | |
| | | | | 10 | | | | Wet gray loamy sand (SAND), loose and compact, mostly medium to | | |
| | | | | | 11 | | | fine size sand, (SP) | | 28.0 |
| | 13 | WR | | | | | | , , , | = | |
| | | | 3 | | <u> </u> | 8 | 10" | | stain | |
| | | | | 5 | | | | | - 5 | |
| 30 | | | | | 0 | i | | $-$ grades downward to $\frac{30.0}{100}$ | i lee | |
| | 14 | 6 | | | | | | grades downward to 30.(Wet gray gravelly loamy sand | Sch | Nieto Nieto |
| | | | 9 | | | 22 | 8" | (SAND) with 15 to 40% mostly | e l | |
| | | | | 14 | | | 8. | subangular to rounded gravel, | STE | and a second |
| | | | | · | 31 | | | compact in place, loose when | | 1 |
| | 15 | 20 | | | | | | disturbed, stratified mostly | Super | |
| | | |] Ç | | | 30 | | medium to coarse size sand, (SP) | S S | 33.0 |
| | | | | 11 | | 39 | | 33.0 | Ü | र्व |
| | | | | | 7 | | _ | Wet reddish brown (SILTY-CLAY), | | <u> </u> |
| | | | | | | | _ | stiff, weak thinly laminated 34.0 | | |
| _35 | | | | | | - 1 | | Boring completed at 34.0 feet. | | |

N = NUMBER OF BLOWS TO DRIVE _____ " SPOON ____ 12 " WITH __140 ___ Ib. WT. FALLING 30

2



Test Borings and Logs East Aurora, New York 14052 • (716) 655-1717

HOLENO. 47B

SURF. ELEV.

Landfill well install. LOCATION Approx. 45.0 feet west of

1E85a

Buffalo Avenue, Niagara Falls, NY

existing MW-47

CLIENT

GEOTRANS/EPA and DOJ

DATE STARTED 4/29/86 COMPLETED 4/30/86

| DEPTH feet | 110 | | | OWS AMPL | | | | DESCRIPTION & CLASSIFICATION | WATER TABLE & REMARKS |
|------------|--|----------|--------------|---------------------------------------|-------------|------------|-----|---|--|
| | ¥ ž | 6 | | 12 / 18 | 16/24 | N | REC | DESCRIPTION & LEASSIFICATION | |
| | 1 | 16 | | | | | | Extremely moist dark brown | Topsoil to 0.5 feet |
| | <u></u> | <u> </u> | 7 | | | | | silt loam (SANDY-SILT) top- | over silty soil fil |
| | | | | E | | Ι5΄ | 18" | \soil with few fine roots | to 0.8 feet over sa |
| | | | | | 14 | | | \\(CL-ML\) 0.5 | fill with some grav |
| | 1 | h 5 | | | | | | Moist black silt loam (SANDY- | to 1.3 feet over mi |
| | - | <u> </u> | 15 | | | | | \SILT) fill with 5 to 15% | fine silt and coars |
| | 2 | 6 | 1.0 | | | | | white material (ML) 0.8 | silt fill to 1.8 fe |
| | 2 | 1 0 | | ! | | ٠. | 11" | Moist dark brown gravelly | over very fine sand |
| | <u> </u> | ! | €_ | | | | | sandy loam (SILTY-SAND) fill | fill to 2.1 feet ov |
| | | | | 3 | | | | with 15 to 40% mostly sub- | mostly flyash to 5. feet over assumed |
| 5 | | | | | 3 | | | angular gravel, compact, | industrial fill to |
| | <u> </u> | WP | | 1 1 | | | | loose when disturbed, (GM) | 10.5 feet over fine |
| | | | 1. | | | . 7 | ٥ | Moist mixed reddish brown | silty alluvial sedi |
| | | | 7 | 12 | | ≺ ⊥ | U | silty clay loam (CLAYEY-SILT) | ment to 12.0 feet o |
| | | | | | 1 | | | and brown silty loam (SANDY- | coarse silty alluvi |
| | 3 | 1 | | | <u> </u> | | •. | SILT) fill, very stiff and | sediment to 16.0 fe |
| | <u> </u> | | 1 | | | | | compact, (CL-ML) 1.9 | over water sorted a |
| | | | | | - | | | Extremely moist dark gray | deposited mostly ve |
| | 4 | WR | | | | | | very fine sandy loam (SILTY- | fine size sand to 2 |
| | | | WR | | | WR, | Q | SAND) fill, compact, (SM-ML) | feet over water sor |
| , | | ! | | WR | | | | clear transition to- 2.1 | and deposited fine |
| 10 | | | | V | ZR. | | | Extremely moist dark gray fly | medium size sand wi |
| | 5 | 3 | | | | | | ash, coarse silt to gravel | some gravel to 31.0 |
| | | | 3 | | | | | size, with inter mixed white | feet over water sor |
| | | | | 5 | | 8 | 26* | material between 2.5 and 3.1 | and deposited sand gravel to 33.5 feet |
| | | | | | 7 | | | foot depth 3.5 | over clayey lake se |
| | 5 | 10 | | | | \dashv | | Moist mixed dark gray and | ments to end of bor |
| | | 101 | | · · · · · · · · · · · · · · · · · · · | | | | black flyash, coarse silt to | ments to end of ber |
| | | | 12 | | | | | very fine sand size, loose | No recovery to samp |
| | 6 | 2 | | | | | | il Essuilleu | 3 and 4, noticed wa |
| | | | 2 | | | . 5 | 13" | Wet white and gray industrial | on roas at 6.0 feet |
| | - 1 | | ! | ٠ | | | 10 | fill, coarse silt size, with | with iridescent she |
| | Í | | | | 4 | | | unknown fiberous material at | |
| | 7 1 | 4 | | · | | | | 10.5 feet, very loose 10.5 | WR- Sampler penetra- |
| | | —∸-i | 6 | | T | \neg i | | Extremely moist black silt | tion with weight |
| | - | | - | _ | - | 11 | | loam (CLAYEY-SILT), firm, | of rods only. |
| } | | | | | | | | very fine brown organic fiber | 000429 |
| | | 7 | | | 5 | _ | | with fine to medium size weathered roots, (OL-ML) | |
| | 7 | 7 | i | | . 1 | | i i | grades downward to 12.0 | Continued on sheet |

N = NUMBER OF BLOWS TO DRIVE $\frac{2}{}$ "SPOON $\frac{12}{}$ "WITH $\frac{140}{}$ Ib. WT. FALLING $\frac{30}{}$ "PER BLOW.



DIMENSIONS,

Test Borings and Logs

East Aurora, New York 14052 • (716) 655-1717

BORE

HOLENO. 47E

SURF. ELEV. _

PROJECT

102nd St. Landfill well install. LOCATION Approx. 45.0 feet west of

lE85h

Buffalo Avenue, Niagara Falls, NY

existing Mw-47

| DEPTH | SAMPIE NO. | | | OWS (| | | DE C | DESCRIPTION & CLASSIFICATION | Water table & remarks |
|--------|--|--------------|----------|-------------|-------------|----------|----------|---|---|
| Fac+ | SAM | % | ٠ 12 | 12 / 18 | 15/24 | N | REC | DESCRIPTION & COLORIDA | WAISK IAME & EMAILS |
| | 7 | | ρ | | | | | Extremely moist dark brown | |
| | 3 | 3 | | | | _ | | silt loam (SANDY-SILT), com- pact, with some very fine ver- | Samples 1,3,5,7,9, 1 and 13 obtained with |
| | | | 2 | | | .,! | 13" | tical roots and fine size | 3" OD-3' sample spoot |
| | | | | 3 | | - | 13 | lorganic fiber oriented hori- | Samples 2,4,6,8,10,1 |
| 20 | | | | | 1 | | | zontally, noticed thin fine | and 14 obtained with |
| | ġ | 4 | | | | | | sand lenses, (ML) | 2" OD-2' sample spoo |
| | | | 3 | | | .5 | 30° | grades downward to- | 63:) () |
| | | | | 2 | | | <i>-</i> | Extremely moist distinctly mottled grayish brown silt | Slight chemical odor to sample 13, trace |
| | | | | | 4 | | | lloam (SANDY-SILT), loose, with | |
| | ٥ | 4 | | | | | | some fine size organic fiber | Noticed dark brown |
| . | | | _6 | 1 | | | | poriented horizontally with | liquid napl with iri- |
| | امد | 5 | | | | | : | loccasional fine size vertical | descent sheen in sam |
| | | _ | 3 | | | 8 | 10° | root, with thin fine sand lenses, increasing in sand | ple 14. |
| | | _ | | 5 | | | | content below 14.0 feet, (ML) | |
| 5 | | - | | | 9 | \dashv | | L grades downward to 16.0- | |
| į | 11 | 2 | | | | _ | | Extremely moist gray very | |
| | | - | 11 | | | , = 1. | 29° | fine sandy loam (SILTY-SAND), | |
| | | - | | 12 | 17 | - | 2) | compact with some fine size | |
| | | | - ! | | 1/ | - | ٠. | prganic fiber oriented ver- tically, with thin coarse silt | |
| | لبت | _ | | | | | | lilenses, (SM tending towards | |
| | | - | 19 | <u> </u> | 1 | | | [ML) 17.5 | |
| | <u> </u> | 6 | _ | } | | | | grades downward to = ' | |
| | <u> </u> | \dashv | <u>8</u> | 9 | ¦ | 17 | 125 | Wet gray fine sandy loam | |
| | | | | 9 | | | | (SILTY-SAND), very loose, becoming loose below 20.0 | |
| ∵∩ | 1 3 | 5 | | | 27 | \dashv | | foot depth, noticed one (1) | |
| | ئە خە | 3 | | <u>i</u> | 1 | \dashv | | 'small shell fragment at 23.5 | |
| | | | 7 | 2 0 | | 261 | 33 * | feet, weak thinly bedded, | |
| ! | | | | <u> 191</u> | 35 | \dashv | | (ML)-grades downward to-25.0 | |
| | 13 | 63 J | | 1 | <u> </u> | | | | |
| | بر <u>. </u> | <u></u> | | | | _ | | , | |
| İ | 1.4 | | 63 | | | | | See next sheet. | |
| i | - 4 | <u>: U </u> | 2 | | | | | | |
| 1 | | - | - | | _ | 3 1 | 1 = | | 000430 |
| į | 1 | | | 11 | 1 | | _ | | 0 0 0 0 0 0 LE . 76 1 7 |



Test Borings and Logs East Aurora, New York 14052 • (716) 655-1717

| BORE | |
|----------|--|
| HOLE NO. | |

47E continued

| SURF. | EI EV | | |
|-------|--------|--|--|
| JU11/ | TILLY. | | |

GEOTRANS/EPA and DOJ

PROJECT 102nd St. Landfill well install. LOCATION Approx. 45.0 feet west of

CLIENT

1E85g Buffalo Avenue, Niagara Falls, NY

existing MW-47

DATE STARTED 4/29/86 COMPLETED 4/30/86

| DEPTH fee |). | | | OWS AMPI | | | | DESCRIPTION & CLASSIFICATION | WATER TABLE & REMARKS |
|--------------|----------------|--------------|---|--|--|--|------------------------------|--|-----------------------|
| fee: | SAM | 6 | | 12 / 18 | 18/24 | N | DESCRIPTION & CLASSIFICATION | | WATER TABLE & REMARKS |
| | | | | | <u> </u> | | | Wet gray loamy sand (SAND),com- | |
| | | | | <u> </u> | <u> </u> | - | | pact, with medium and fine | |
| | | ļ | | ļ | <u> </u> | | | size sand, (SP) noticed wet gray gravelly loamy sand (SAND | |
| | | | | <u> </u> | <u> </u> | 1 | | with 15 to 40% subrounded | |
| 2.0 | | | | | | | | gravel at 26.5 to 27.0 feet | |
| | | | | | <u> </u> | | | and 27.5 to 28.0 feet with | |
| | | | | | | | | small shell fragments, com- | |
| | | | | | | 1 . | | pact, loose when disturbed, | |
| | | - | | | | | | (SP) - grades downward to- 31.0 | |
| | | | | | | | | Wet gray gravelly loamy sand | |
| | | | _ | Ī | | - | | (SAND) with 15 to 40% fine to | |
| | 1 | | | | İ | | | medium size subangular to sub- | |
| | i | | | | İ | \vdash | | rounded gravel, with trace | |
| | | 1 | | İ | | | | small shell fragments, very | |
| 25 | | 1 | | | | \vdash | • | dense, loose when disturbed, | |
| | - | | | <u>. </u> | - | | . 1 | stratified, mostly medium to coarse size sand, (SP) 33.5 | |
| | | + | | | | | - 1 | Wet reddish brown (SILTY- | |
| | | | | | ┼ | | - { | CLAY), soft, weak thinly lam- | |
| | | + | | | - | \vdash | - 1 | inated, (CL) 35.0 | |
| - | - | - | _ | 1 | ! | | -1 | | |
| | | | | <u> </u> | | | - ! | Boring completed at 35.0 feet. | |
| | | | | | ! | | 1 | | · |
| | | | | | | | 11 | | |
| | | | | | | | i 1 | | |
| | | | | | | | $ \cdot $ | | • |
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| | | | [| | | ; | | | 000424 |
| | | | | | | | | | 000431 |
| 35 | | | | | | | | | |

| N = NUMBER OF BLOWS TO DRIVE | " SPOON | " WITH 140 | Ib. WT. FALLING | 30 | ," PER BLOW. |
|------------------------------|-------------|----------------|-----------------|----|--------------|
| | | | • | • | |



Test Borings and Logs
East Aurora, New York 14052 • (716) 655-1717

| BORE HOLE NO. | 47 <u>C</u> | SURF, ELEV. |
|------------------|--|--|
| PROJECT 1E85q | 102nd St. Landfill well i Buffalo Avenue, Niagara F | install.LOCATION Approx. 35.0 ft. east of existing OW-47 |
| _ | GEOTRANS/EPA and DOJ | DATE STARTED 5/1/86 COMPLETED 5/1/86 |

| DEPTH | AFIE | BLOWS ON SAMPLER | | | | | REC | DESCRIPTION & CLASSIFICATION | WATER TABLE & REMARKS |
|-------------------|--------------|---------------------|------|--|-----|-----|-------|---|--------------------------------------|
| DEPTH feet | Šž | 0/6 | 6/12 | 12/18 | | N | 11.20 | | |
| | 1 | 7 | | | | | | Extremely moist dark brown | Topsoil to 0.5 feet |
| | | | 9 |) | Ī | 20 | 26 | silt loam (SANDY-SILT) with | mixed with gravel to |
| | | | | 11 | | 20 | 20 | fine roots, noticed 15 to 40% | 1.0 feet over flyash |
| | | | | | 20 | 1 | | small to medium size gravel, | 3.0 feet over flyash |
| | 1 | 17 | | i | 20 | İ | | occasional cobble below 0.5 | and cinders to assum |
| | | - / | | 1 | | | | \foot depth, compact, (ML) 1.0 | 4.5 feet over flyash |
| | _ | | 16 | <u> </u> | 1 | | | Moist reddish brown (CLAYEY- | and or foundry sand |
| | 2 | 4 | | | | | | SILT) fill, very stiff, with | 10.0 feet over possi |
| | | | 2 | - | | 5 | 2* | few very fine roots, (CL-ML) 2.0 | drum filled with oil |
| | | | | 3 | | | | Moist mixed black and dark | substance to |
| 5 | | | | 1 | 1 | | | gray flyash, coarse silt to | 13.0 feet over silty |
| | 3 | 2 | | 1 | | | | fine sand size with occa- | alluvial sediments to end of boring. |
| | | | WH | | | | | sional fine size gravel be- | end of boling. |
| ĺ | | | | 1 | | 42 | 19" | tween 2.0 and 2.3 foot depth | Samples 1,3 and 5 |
| | | | | - | | | | 1'Lgrades downward to- 13.0 | obtained with 3° OD |
| ţ | 7 | ٦ أ | | | 1 | | | Wet mixed dark gray and black | |
| | <u> </u> | - ! ! | | 1 | | | | flyash and cinders, coarse | Samples 2,4, and 6 |
| 1 | | | 1 | ! | | | | silt to fine gravel size, | obtained with 2" OD |
| | 4 | 1 | | | | | | loose | split spoon sampler. |
| 1 | | | 1 | | | ا ا | 4 = | 1 assumed 4.5 | |
| <u>[</u> | | | | 2 | | 3 | 4 | Wet mixed gray and dark gray | WH-Sampler penetrati |
| ام ب | | | | | ١ | | | flyash and/or foundry sand, | with weight of ro |
| | 5 | 18 | | | _ | | | coarse silt to very fine sand | and hammer. |
| Ì | | - | | | | | | \size, very loose 10.0 | |
| ŕ | | - | 10 | 5 | | 15 | 0 | 4004 | REC-Recovery |
| ł | i | | | - | | | | Possibly penetrated a decom- | |
| } | ! | | | | 6 | | | posed drum filled with an | |
| | 5 | 5 | | | | | | oily substance, light brown | |
| | | | ç | | | | | in color 13.0 | |
| L | F | 2 | | | | | | Extremely moist faintly mot- | |
| | | | 5 | | | | | tled silt loam (SANDY-SILT), | |
| ļ | | i | | 6 | | 11 | 14 " | compact, with some medium | |
| 15 | | - i | | | 5 | | | size black roots oriented | |
| 1 | | | | · | ا ر | - | | vertically, and fine organic material oriented horizon- | |
| 1 | <u> </u> | ! | | | | | | tally with very thin fine | |
| - | ! | | | <u> </u> | | | | \sand lenses, (ML) 15.0 | |
| | | | | | | | | | 000432 |
| | | | | | | | | Boring completed at 15.0 feet | |

N = NUMBER OF BLOWS TO DRIVE 2 & 3 " SPOON 12 " WITH 140 Ib. WT. FALLING 30 " PER BLOW.



Test Borings and Logs East Aurora, New York 14052 • (716) 655-1717

MONITORING

OW-48-86

GEOTRANS/EPA and DOI

SURF. ELEV.

102nd St. Landfill well install. LOCATION Northeast corner of Griffin

1E85g CLIENT Buffalo Avenue, Niagara Falls, NY

DATE STARTED 2/12/86 COMPLETED 2/12/86

BLOWS ON SAMPLER SAMPI NO. DESCRIPTION & CLASSIFICATION DEPTH REC WELL WATER TABLE & REMARKS (1) in_5 Moist faintly mottled brown Topsoil to silty clay loam (CLAYEY-SILT) 0.5 feet ove 8 10" with some fine root fibers, flyash and (3) 0.5 stiff, (CL-ML) cinder indu: ac Moist light gray and white trial fill 111 flyash and black cinders, ,0 feet ove noticed several green glass mixed soil fi with flyash an cinger tragment to 4.2 feet ove 25 14 " fragments mixed in flyash with 1 piece gravel size 24 flyash and sewage material at 0.6 feet, indus cinder loose when disturbed, fill 2.0 rial waste pa Extremely moist faintly mot-2 8.5 feet ove tled mixed gray silt loam $\ddot{\Sigma}$ pu ပ coarse silt: (SANDY-SILT) and brown silt Lake Tonaott loam (SANDY-SILT), compact, wanda sedimostly soi! fill, noticed nd nd ment to 9.5 3 WH trace white flyash at 2.5 to feet over ဖ 2.8 foot depth es. fine silty 3 9 # Extremely moist to wet faint-Lake Tona-Super stain ecial ly mottled gray silt loam wanda sedi-(SANDY-SILT) fill with crushto end of 9 11" ed black cinders from 3.5-3.7 5 boring. feet with several large clear ഗ് 110.0 10 glass fragments at base of WH-Sampler penetration sample boutom 0.1 feet, wet and hammer Wet mixed black and dark gray silt to sand size flyash and

with weight of rods

(1) Protective cover.

- (2) Bentonite pellet seal.
- (3) Cement-bentonite grout.

Water table at 7.0 fee below surface one hour after completion.

000433

Continued on sheet 1A.

| N = NUMBER OF BLOWS TO DRIVE | | _ " SPOON | 12. | " WITH 140 | Ib. WT. FALLING | 3.0 | " PER BLOW. |
|------------------------------|--|-----------|-----|------------|-----------------|-----|-------------|
|------------------------------|--|-----------|-----|------------|-----------------|-----|-------------|

cinder industrial fill, one

medium size gravel piece at

Wet black silt to sand size

one red clay tile fragment, noticed slight iridescent sheen in liquid on this sam-

ple, very losse, tends to liquify when disturbed

flyash, indestrial fill with

brown glass fragments between

6.5

8.5

4.4 feet, small clear and

4.5-5.5 foot depth, very

loose



GEOTRANS/EPA and DOJ

DIMENSIONS, INC.

Test Borings and Logs

East Aurora, New York 14052 • (716) 655-1717

| MON | IT | OR | ING |
|-----|----|----|-----|
|-----|----|----|-----|

WELLL: <u>OW-48-86</u> continued

| SURF. | ELEV. | |
|-------|-------|--|
| | | |

PROJECT 102nd St. Landfill well install. LOCATION Northeast corner of Griffin

LE85g CLIENT Buffalo Avenue, Niagara Falls, NY

DATE STARTED 2/12/86 COMPLETED 2/12/86

| P(CEAT) | E . | BLOWS ON SAMPLER | | | ₹ | | DESCRIPTION & CLASSIFICATION | WATER TABLE & REMARK |
|-----------------------|-----|---------------------|----------------|---------------|---------------|---|--|------------------------|
| DEPTH feet | A Z | V 6 | 6/12/12 | 18 | 24 | N | podir for a country | WATER TABLE & REMARKS. |
| | | | | | 1 | | Wet olive gray silt loam | |
| | | | | | | | (SANDY-SILT), loose, with | |
| | | | | | | | fine size sand lenses, tends | |
| ļ | | | - 1 | | - | | to liquify when disturbed below 9.0 feet, (SM) 9.5 | |
| ļ | | | Ī | | | | Delow 9.0 leet, (SM) 9.5 | |
| | | | | 1 | | | Wet distinctly mottled brown | |
| , | | | | İ | | | silty clay loam (CLAYEY-SILT) | |
| | | | | T | | | weak thinly laminated, stiff, | |
| 1 | | i | | Ť | | | (CL-ML) 10.0 | |
| 5 | | 1 | | \dashv | <u> </u> | T | | |
| and the second of the | | i | | T | $\overline{}$ | | //Boring completed at 10.0 feet | |
| | | | Ť | Ť | | | | |
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DIMENSIONS,

Test Borings and Logs

East Aurora, New York 14052 • (716) 655-1717

MONITORING

CLIENT

WELL OW-49-86

SURF. ELEV. _

PROJECT 102nd St. Landfill well install. 1E85g

GEOTRANS/EPA and DOI

Buffalo Avenue, Niagara Falls, NY

DATE STARTED 2/17/86 COMPLETED 2/18/86

LOCATION Near 102nd St. Landfill fence

| | 2 | | | OWS (| | | • | | | ì | |
|---------------------|------|-----------|----------|-------------|-----------------|----------|-----|---|-------------------|------------|---------------------------------------|
| DEPTH | SAMI | 6 | 6/12 | | 10/ | ĸ | REC | DESCRIPTION & CLASSIFICATION | WELL | WATE | R TABLE & REMARKS |
| foot | ٦ | ے دیــ | | | | | | Frozen to 0.5 feet, moist be | _ (1) | 0.5 | Soil fill to |
| | | | 17 | | - | 30 | 24" | low, dark gray silt loam | 1 | ĺ | 1.5 feet ove |
| | | | | 13 | | 30 | 24 | (CLAYEY-SILT) topsoil with 5 | | ļ | mostly incin |
| | | | <u> </u> | | 2 | | | to 15% dolomitic gravel and | * | | erated gar- |
| | | | | | | | | \ occasional cobble, few fine | ас ре | ļ | bage to 8.5 |
| | 1 | 8 | | | | | | \roots, one red broken brick | b1d | 12.6 | feet over |
| | | | 16 | | | | | \fragment 1.5 | 1 1 | j | mucky mater- |
| | 2 | 6 | | | | | | Extremely moist mixed and in | | 3.7 | ial to 9.5 |
| | | | 4 | | | | | \ layers about 2-4 inches thick | را ق | 1 | feet over |
| | | | | 2 | | 6 | 14" | dark brown, reddish brown and | 2 2 2 | 1 5 | mostly coars |
| 5 | | | | | 2 | \dashv | | \black cinder, silt to gravel | - F | ٦٠٠ | silt alluvia |
| | 2 | 2 | | i | | \neg | | size 2.5 | _ 💆 | | sediment to |
| | -4 | _< | 5 | | | | | Extremely moist becoming wet | ed screen | . | end of sam- |
| 1 | | | ٦ | | | \dashv | | below 4.0 feet, mixed black, | | | pling. |
| | 3 | 2 | | | | | | rusty brown and white ashes | lott stæl | | |
| | | | 2 | | | 3 | 17" | with broken clear glass frag- | S | Ì | (1) Bentonit |
| | - | | | 1 | | اد | 1/ | ments and one (1) concrete | S | | pellets. |
| | ļ | | | | 2 | Ī | | fragment, compact, appears to | = es | | |
| | ٦ | 2 | | | | | | be incinerated garbage, | r d | | Noticed iri- |
| | | _ | 1 | | | ┪ | | colors are bright | per ain end | | descent shee |
| | | | | - | | \dashv | | 02002 02000202000 00 | Sup ste | · I | to liquid to |
| | -4 | 2 | | | | | | Wet black mostly cinders, | R 810 | 9.5 | mucky zone i |
| <u> </u> | | | 2 | | — . | | 23" | fine sand to gravel size, | se | | upper part o |
| | | | | 21 | | _ | 20 | with broken glass, wood frag- | 1 \ | | sample #4. |
| | | | | 1 | 3 | | | ments coarse to fiberous ori- | | | |
| | 4 | 5 | | | | | | ented in all directions, very loose, petroleum odor, iri- | را ا | | |
| Ī | | | 6 | | | | | descent sheen 8.5 | | 12.0 | 1 |
| | | | - | | _ | | | Wet dark gray mucky silt loar | | 112.1 | |
| | | | | | | \dashv | | (CLAYEY-SILT) with a high | 1 | . + ~ h · | le at 6.0 fee |
| - | | | - 1 | | | | | component of nearly vertical | 4 | | face at com- |
| | | - | | | | _ | | brown roots and organic fi- | 4 | | |
|] | | | | | | _ | | berous material, very loose 9.5 | to li | | Asphalt smel |
| 1 | | | | | | | | Extremely moist dark gray | 100 11 | . Quali | • |
| 15 | į | | | i | | | | silt loam (SANDY-SILT) with | | | |
| | i | | | - | | | | nearly vertical brown fine | | | |
| i | | | <u>-</u> | | - - | - | | size roots, fine black root | | | |
| ļ | - 1 | | | | 1 | \dashv | | channels, noticed little | | | |
| ļ | | ! | | | | _ | | partially decomposed flat | | | ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ |
| | | | | | | | | brown fibers oriented hori- | | | 000435 |
| Ī | - ī | Ĭ | Ī | Ī | 1 | - 1 | | contally weak thinly bedded | ŧ | | _ |

Boring completed at 12.0 feet. ___ " SPOON _____ " WITH ____ 140 lb. WT. FALLING __

N = NUMBER OF BLOWS TO DRIVE

30 " PER BLOW.



Test Borings and Logs

East Aurora, New York 14052 • (716) 655-1717

MONITORING

WELL OW-50-86

SURF. ELEV.

| PROJECT | 102nd St. Landfill well instal | 1. LOCATION | East centra | l part of Griffir |
|---------|--------------------------------|-------------|-----------------------------------|--|
| | Buffalo Avenue, Niagara Falls, | | | |
| CLIENT | GEOTRANS/EPA and DOJ | DATE STAR | Landfill, j TED <u>2/18/86</u> | fence to 102nd S: ust south of 0x 45 COMPLETED 2/20/86 |

| DEPTH | AMFIE | | | OWS AMPI | | | REC | DESCRIPTION & CLASSIFICATION | | , | WATER | TABLE & REMARKS |
|----------------|-------------|--|--|--|--|--------------|-----|--|---------|--------------|-------------|-------------------------|
| feet | Šž | U/6 | $\frac{\epsilon}{12}$ | 12/ /18 | 1b/24 | Ñ | REC | DESCRIPTION & CASSIFICATION | WEL. | ь | WAIEK | TABLE & REMARKS |
| | _ | <u> </u> | _ | <u> </u> | | | | | (1 |) | 0.5 | Samples 1 a |
| | - | | | <u> </u> | | | | | | İ | | 3 with 3' |
| | <u> </u> | ! | ļ | 1- | | | | Refer to monitoring well log | | İ | | long, 3* |
| | - | _ | | <u> </u> | | | | OW-49-86 for stragraphy des- | | ابد | | split spoor |
| | - | ļ | | <u>!</u> | | \Box | ĺ | cription of materials above | | ron | | samples 2 a |
| | - | | ├- | <u> </u> | | | | 12.0 foot depth | ٥ | Б | | with 2' lor 2" split |
| | - | 1 | - | 1 | | | Ì | | - | ا د | | spoon. |
| | _ | <u>! </u> | <u></u> | 1 | | - | 1 | | 1 | - | | opoo |
| | | - | | | | | į | | 1 | | | Sampled in |
| | 51 | - | - | <u> </u> | <u> </u> | _ | İ | | 9 4 | ע ו | | coarse silt |
| | - | 1 | - | - | | | . [| | ipe - | 1 | | very fine a fine size |
| | - | <u> </u> | - | 1 | - | | | | عنما | = 1 | | sand alluv |
| | - | <u> </u> | 1 | 1 | | - | | | el j | | l | sediments |
| | - | 1 | | 1 | <u> </u> | | | | 9 0 | ز | ב כ | 21.0 feet |
| · | | 1 | 1 | | | _ | | | 20 | , | | over water |
| | - | - | | - | | { | | | S C | ts | | sorted and |
| | - | ! | - | <u> </u> | | | 1 | Wet faintly mottled olive | 1ac |) u [| | deposited sand |
| | - | 1 | - | - | | \dashv | | gray very fine sandy loam | ء اِم | | | gravel, tra |
| | - | - | | <u> </u> | | \dashv | | (SILTY-SAND), compact weak thinly bedded, few brown | r Re | pe | 9.7 | silt to |
| <u>ا۔ انسس</u> |)! | 1 | 1 | <u>!</u> | 1 1 | | 1 | nearly vertical roots, mot- | e te | 4 | | assumed 21 |
| | - | - | <u> </u> | | | \dashv | 1 | Ching oriented mostly along | E | ช | | feet over |
| | - | | | 1 | <u> </u> | | | moot channels, one (1) fine | | <u> </u> | | loamy glac: |
| | | | | <u> </u> | | | | gize rounded gravel, (SM | e d | = 1 | | of boring. |
| | - | 5 | - | - | | | | tending towards ML) $r = -\text{grades downward to} - \frac{14.0}{12.0}$ | ide | | | |
| American . | 11 | 1 -5 | 5 | <u> </u> | | | | Wet dark gray very fine sandy | 10 | 2 | | Augered wi |
| | - | | 15 | - | - | 11^{1}_{1} | 29" | / loam (SILTY-SAND). compact, | 11 | ן ע | | out sampling |
| | - | | | 6 | 6 | | | weak thinly bedded, very few | 5 2 | | | with 14 inch 8½ inch |
| | | i | \vdash | | 0 | _ | 1 | very fine nearly vertical | Ē 0 | | | inside dia |
|) [| | 1-6 | F. | 1 | | - | | brown roots to 15.5 feet, (SM | , , | -; | | meter auge: |
| mentana santa | 2 | 1 | | İ | | _ | | <pre>tending towards ML) 15.5</pre> | 3 3 | > 1 | | to 10.0 fee |
| | - | <u>: -</u> | | <u> </u> | ! ! ! ! | \neg | | | I | | | Feb. 18, to |
| | - | i | 13 | 12 | | 5 | 12" | | ī | נ ז | | 12.0 foot |
| | - | - | 1 | 12 | 3 | | | | | U | 16.5 | |
| | 3 | 2 | | ! | ادا | | ; | | (2) | ש ו | | Continued of sheet 2. |

000436

N = NUMBER OF BLOWS TO DRIVE 362. "SPOON 12 "WITH 140 Ib. WT. FALLING 30 " PER BLOW.



Test Borings and Logs
East Aurora, New York 14052 • (716) 655-1717

Copy

ONITORING

WELL - _OW-50-

OW-50-86 continued

SURF, ELEV.

PROJECT

102nd St. Landfill well install.
Buffalc Avenue Niagara Falls NY

LOCATION East central part of Griffin Park, near fence to 102nd St

1E85g CLIENT

GEOTRANS/EPA and DOJ

DATE STARTED 2/18/86 COMPLETED 2/20/86

| DEPTH | ₹.0 | | | OWS AMPL | | | REC | DESCRIPTION & CLASSIFICATION | WELL WATER TABLE & REMARKS |
|----------|---------------|-----|------|-------------|---------------------------------------|---|-----|--|---|
| feet | SAMPLE NO. | 0/6 | 6/12 | 12/ /18 | 16/24 | ĸ | REC | SECULTION & COSSITION | E E |
| | 3_ | | 3 | 3 | | 6 | | Wet dark gray very fine sandy loam (SILTY-SAND), compact, | 1 |
| | | | | | 5 | | 32" | weak thinly bedded, very few | sampling on Feb. 20, 198 |
| | 3 | 6 | | | | | | very fine nearly vertical | s s s s s s s s s s s s s s s s s s s |
| 20 | | | 6 | | | | | noticed occasional fine size | Resampled in same sampling |
| į | 4 | WP | 2 | 1 | | | | white broken shell fragments | hole 20.0- |
| | | | 2 | 6 | <u>'</u> | 8 | | brown roots to 15.5 feet, noticed occasional fine size white broken shell fragments and black decayed organic root at about 18.5 foot depth 21.0 | ting 22.5 foot 0 22.5 foot with |
| | | | | | 66 | | | , grades downward to | 0 4 20.19 5 05 |
| | | | | | | | | Wet gray very gravelly loamy sand (SAND) with 40 to 60% | m 22.5 spoon with WR-WR-WR- |
| <u> </u> | | | | | | | ' | mostly rounded fine to coarse | 12-18 blow |
| | _ | | | | | | | size gravel, fine to coarse size sand, trace silt, loose, | counts. |
| Ī | _ | | | | | | | 'stratified, very thin coarse | Noted only few small |
| 25 | | | - | | | | | silt lensesAssumed21.5 | pinkish brown loamy sediments in two |
| ļ | | | | | | | | Assumed extremely moist pink- | gravel size areas nea |
| 1 | | | | | | | | ish brown gravelly loam (SANDY-SILT) with 15 to 40% mostly | base of 3" spoon. |
| | | | | | | | | subangular dolomitic gravel, | Water table at 14.5 fe |
| | | | | | İ | | | very dense, massive soil structure, (ML) 22.5 | below surface at : |
| | | | | | | | | | completion of samplir 6.2 feet after placir |
| Ė | | | | | | | | Boring completed at 22.5 feet | bentonite pellets. |
| | | | | | | | | Jozzany Compressed at 22.5 reet | Augered to 22.0 foot depth. |
| 30 | | | ! | | · · · · · · · · · · · · · · · · · · · | | | | |
| + | | | | | | | | Weight of end of tape broke after 15.5 feet, stainless | REC-recovery |
| | | | | | | | | steel rod. | WR-Sampler penetration |
| | _ | - | | | | | | | <pre>with weight of rod only.</pre> |
| | | | | . 1 | <u> </u> | | | | _ |
| - | | | | | | | | | (1) Water box protective casing. |
| | | | | | | | | | (2) Super #6 slotted |
| ſ | | | | | | | | | stainless steel |

000437

N = NUMBER OF BLOWS TO DRIVE $\frac{3}{8}$ $\frac{2}{2}$ SPOON $\frac{12}{2}$ WITH $\frac{140}{2}$ Ib. WT. FALLING $\frac{30}{2}$ PER BLOW.



Test Borings and Logs

East Aurora, New York 14052 • (716) 655-1717

ONITORING

WELL - <u>OW-51-86</u>

| SURF. | ELEV. | |
|-------|-------|--|
| | | |

1E85g

PROJECT 102nd St. Landfill well install. LOCATION Waste well in southeast cor-

Buffalo Avenue, Niagara Falls, NY

ner of Griffin Park

DATE STARTED 2/20/86 COMPLETED 2/20/86 GEOTRANS/EPA and DOJ CLIENT

| Extremely moist dark gray silt(1) 0.5 Soil fill loam (SANDY-SILT) topsoil with high component of brown fiber ous roots, compact, (OL-ML) 2 2 | DEPTH | APLE D. | | | LOWS ON SAMPLER | | | REC | DESCRIPTION & CLASSIFICATION | | WELL WATER TABLE & REMAI | | |
|--|-------------|------------|--|------|--|--|----|--------|--|--|--------------------------|-------------|--|
| loam (SANDY-SILT) topsoil with high component of brown fiber ous roots, compact, (OL-ML) 2 2 | feet | X X | 0/6 | 6/12 | | | N | | | | *** | THE TENNAND | |
| 10 10 10 10 10 10 10 10 | | 1 | ٥ | | | | | | | 11 1 1 1 | 0_5 | Soil fill | |
| Extremely moist brown (SILTY-CLAY) fill, stiff, with nearly collection of the control of the collection of the collectio | | | | 7 | | | | | ` | 15+ | | 1.0 feet | |
| Extremely moist brown (SILTY- CLAY) fill, stiff, with nearly claz 2.7 soil fill wertical fine size roots, (CL and 2.3 for feet soil fill wertical fine size roots, (CL and 2.3 for feet soil fill Extremely moist mixed and in the size roots, (CL and 2.3 for feet soil fill Extremely moist mixed and in the size roots, (CL and 2.3 for feet soil fill Extremely moist mixed and in the size roots, (CL and 2.3 for feet soil fill Extremely moist mixed and in the size roots, (CL and 2.3 for feet soil fill Extremely moist mixed and in the size roots, (CL and 2.3 for feet soil fill Extremely moist mixed and in the size roots, (CL and 2.3 for feet soil fill Extremely moist mixed and in the size roots, (CL and 2.3 for feet soil fill Extremely moist mixed and in the size roots, (CL and 2.3 for feet soil fill Extremely moist mixed and in the size roots, (CL and 6.0 for feet soil fill Extremely moist mixed and in the size roots, (CL and 6.0 foot de size roots, (CL | | | | | 6 | | ۳3 |] /" | 1 2 - | 1 155 |) | mixed mos | |
| Extremely moist brown (SILTY odd garbage troth of the size roots, (CL odd garbage troth of the size roots) and size roots are soil fill soil provided garbage troth of the size roots and size roots are soil fill sizes brown, rusty brown, and sizes roots are sizes roots are sizes roots. (CL odd garbage troth of the sizes roots) and sizes roots are sizes roots. (CL odd garbage troth of the sizes roots are sizes roots are sizes roots. (CL odd garbage troth of the sizes roots) are sizes roots. (CL odd garbage troth of the sizes roots are sizes roots. (CL odd garbage troth of the sizes roots) are sizes roots. (CL odd garbage troth of the sizes roots are sizes roots. (CL odd garbage troth of the sizes roots are sizes roots. (CL odd garbage troth of the sizes roots are sizes roots. (CL odd garbage troth of the sizes roots. (| , | | i | | Ī | 5 | | 1 | | | • | household | |
| 1 | | 2 | 12 | | Ī | | | j | Extremely moist brown (STITY- | 7 2 2 5 a | | garbage t | |
| | | - | 12 | _ | | | | 1 | CIAV) fill stiff with nearl | $\sqrt{-75}$ | 2.7 | | |
| Sample 2 | | | - | -3 | | | 5 | 1" | (CLAI) IIII, Still, with modification of the size roots. (CI | | | | |
| Sample 2 Sample 3 Sample 3 Sample 3 Sample 4 Sample 3 Sample 4 Sample 4 Sample 4 Sample 4 Sample 4 Sample 4 Sample 4 Sample 4 Sample 4 Sample 4 Sample 4 Sample 5 Sample 6 Sample 6 Sample 6 Sample 6 Sample 7 Sample 7 Sample 8 | | | | | <u> 12</u> | 1 | | - | 1. | 62 (2) | 3.7 | | |
| layers brown, rusty brown, and | | - | UD | | <u> </u> | <u> </u> | | 1 | Extremely moist mixed and in | 1: 4 | | | |
| | | 2 | - | | <u> </u> | | | } | llayers brown, rusty brown, an | 42 R | 4 5 | | |
| sand to fine gravel size, come of control pact grades downward to - 2.0 vial sedit v | 5 | | 1 | WP | <u> </u> | ب ـــا | | ! : | lidark gray mostly cinders, fin | € | • | | |
| Pact - grades downward to - 2.0 Wet black cinders, coarse sand to gravel size, 4.0 Sample 2 February February Februa | ļ | | | | 2 | | (3 | 5" | Isand to fine gravel size, com | † 10 O | | | |
| Wet black cinders, coarse Company Compan | | | | | | 2 | | | Pact-grades downward to- 2.0 | ما "ا | | - | |
| Wet mixed black and brown fiberous debris included paper, small fragments of tin foil, poor recovery grades downward to Wet mixed gray and black silt loam (CLAYEY-SILT) soil fill, soft 6.0 Wet black paper, thin layered with broken glass, wood fragments, silt size waste (unknown), loose 9.0 Extremely moist dark brown silt loam (SANDY-SILT), very loose, with fine partially deteriorated organic flat fiber oriented horizontally and fine size nearly vertical roots (OL-ML) 10.0 Boring completed at 10.0 feet No chemical odor. (1) Water box protective | | 4 | 2 | | | | | | Wet black cinders, coarse | 82° | | | |
| Wet mixed black and brown fiberous debris included paper, small fragments of tin foil, poor recovery 5.0 Compared to paper, small fragments of tin foil, poor recovery 5.0 Compared to paper, small fragments of tin foil, poor recovery 5.0 Compared to paper, small fragments of tin foil, poor recovery 5.0 Compared to paper, thin layered with broken glass, wood fragments, silt size waste (unknown), loose 9.0 Extremely moist dark brown silt loam (SANDY-SILT), very loose, with fine partially deteriorated organic flat fiber oriented horizontally and fine size nearly vertical toots (OL-ML) 10.0 Boring completed at 10.0 feet No chemical odor. (1) Water box protective | Ì | | | 4 | | | | | lband to gravel size | 15 8 25 | | | |
| 1 | | | | | 2 | | 6 | 3" | | Sle | <u>{</u> | J | |
| 1 | ļ | | | | | Δ | | | Wet mixed black and brown | (a) 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | Ī | Sample 2 | |
| paper, small fragments of tin foil, poor recovery grades downward to5-0 Wet mixed gray and black silt loam (CLAYEY-SILT) soil fill, soft Wet black paper, thin layered with broken glass, wood fragments, silt size waste (unknown), loose Extremely moist dark brown silt loam (SANDY-SILT), very loose, with fine partially deteriorated organic flat fiber oriented horizontally and fine size nearly vertical poots (OL-ML) Boring completed at 10.0 feet No chemical odor. (1) Water box protective | | E , | 1 | | | | | | 11 | | | recovery | |
| Wet mixed gray and black silt loam (CLAYEY-SILT) soil fill, soft 6.0 Wet black paper, thin layered with broken glass, wood fragments, silt size waste (unknown), loose 9.0 Extremely moist dark brown silt loam (SANDY-SILT), very loose, with fine partially deteriorated organic flat fiber oriented horizontally and fine size nearly vertical proots (OL-ML) 10.0 Boring completed at 10.0 feet No chemical odor. (1) Water box protective | i | _ | - | | | | | ĺ | 1 1 | i a | | appears t | |
| Wet mixed gray and black silt loam (CLAYEY-SILT) soil fill, soft 6.0 Wet black paper, thin layered with broken glass, wood fragments, silt size waste (unknown), loose 9.0 Extremely moist dark brown silt loam (SANDY-SILT), very loose, with fine partially deteriorated organic flat fiber oriented horizontally and fine size nearly vertical proots (OL-ML) 10.0 Boring completed at 10.0 feet No chemical odor. (1) Water box protective | i | | | - | Ι, | | 3 | 12" | | 200 | | be plug. | |
| loam (CLAYEY-SILT) soil fill, soft 6.0 Wet black paper, thin layered with broken glass, wood fragments, silt size waste (unknown), loose 9.0 Extremely moist dark brown silt loam (SANDY-SILT), very loose, with fine partially deteriorated organic flat fiber oriented horizontally and fine size nearly vertical roots (OL-ML) Boring completed at 10.0 feet No chemical odor. No chemical odor. No chemical odor. No chemical odor. | | - | | | 1 | 1-1 | | | grades downward to | <u> </u> | | | |
| Soft 6.0 Wet black paper, thin layered with broken glass, wood fragments, silt size waste (unknown), loose 9.0 Extremely moist dark brown silt loam (SANDY-SILT), very loose, with fine partially deteriorated organic flat fiber oriented horizontally and fine size nearly vertical proots (OL-ML) 10.0 Boring completed at 10.0 feet No chemical odor. (1) Water box protective | 10 | | | | ! | 13 1 | | | | | 110.0 | | |
| Wet black paper, thin layered with broken glass, wood fragments, silt size waste (unknown), loose 9.0 Extremely moist dark brown silt loam (SANDY-SILT), very loose, with fine partially deteriorated organic flat fiber oriented horizontally and fine size nearly vertical proots (OL-ML) 10.0 Boring completed at 10.0 feet Water table at 8.5 below surface at copletion. No chemical odor. (1) Water box protective | | | | | | | | | 11 | Encou | inter | ed wire ca | |
| with broken glass, wood fragments, silt size waste (unknown), loose 9.0 Extremely moist dark brown silt loam (SANDY-SILT), very loose, with fine partially deteriorated organic flat fiber oriented horizontally and fine size nearly vertical proots (OL-ML) 10.0 Boring completed at 10.0 feet No chemical odor. (1) Water box protective | | | | | | | | | | | | | |
| ments, silt size waste (unknown), loose Extremely moist dark brown silt loam (SANDY-SILT), very loose, with fine partially deteriorated organic flat fiber oriented horizontally and fine size nearly vertical roots (OL-ML) Boring completed at 10.0 feet No chemical odor. (1) Water box protective | 1 | | | | | | | | , | 4.0 a | ind 6 | .O foot de | |
| (unknown), loose 9.0 The feet to the normal extremely moist dark brown silt loam (SANDY-SILT), very loose, with fine partially deteriorated organic flat fiber criented horizontally and fine size nearly vertical roots (OL-ML) 10.0 Water table at 8.5 below surface at complete to the normal extremely moist dark brown silt loam (SANDY-SILT), very loose, with fine partially deteriorated organic flat plow counts of 2-1-10 Water table at 8.5 below surface at complete to the normal extremely moist dark brown silt loam (SANDY-SILT), very loose, with fine partially blow counts of 2-1-10 Water table at 8.5 below surface at complete to the normal extremely moist dark brown silt loam (SANDY-SILT), very loose, with fine partially blow counts of 2-1-10 Water table at 8.5 below surface at complete to the normal extremely moist dark brown silt loam (SANDY-SILT), very loose, with fine partially blow counts of 2-1-10 Water table at 8.5 below surface at complete to the normal extremely moist dark brown silt loam (SANDY-SILT), very loose, with fine partially deteriorated organic flat plants of the fine flat plants of the fine flat plants of the fine flat plants of the fine flat plants of the flat plants of the fine flat plants of the fine flat plants of the flat | | _ | | | | | | | | reloc | ated | hole a fe | |
| Extremely moist dark brown silt loam (SANDY-SILT), very loose, with fine partially deteriorated organic flat fiber criented horizontally and fine size nearly vertical proots (OL-ML) 10.0 Boring completed at 10.0 feet No chemical odor. (1) Water box protective | I | | | - | | | | | 1 1 | the f | eet t | o the nor: | |
| loam (SANDY-SILT), very loose, with fine partially deteriorated organic flat fiber oriented horizontally and fine size nearly vertical pelow surface at complete to the complete of the completion. Boring completed at 10.0 feet No chemical odor. (1) Water box protective | | | | | | | | | | 1 | | | |
| loose, with fine partially deteriorated organic flat fiber oriented horizontally and fine size nearly vertical proots (OL-ML) Boring completed at 10.0 feet No chemical odor. (1) Water box protective | İ | | | | | | | _ | · · · · · · · · · · · · · · · · · · · | ŀ | | 5 4 5 | |
| deteriorated organic flat fiber oriented horizontally and fine size nearly vertical proots (OL-ML) Boring completed at 10.0 feet No chemical odor. (1) Water box protective | Ì | | | | | | | | | | | | |
| and fine size nearly vertical below surface at copletion. Boring completed at 10.0 feet No chemical odor. (1) Water box protective | i | | | | | | - | | deteriorated organic flat | DTOM | coun | ts of 2-1- | |
| Boring completed at 10.0 feet No chemical odor. | | | - | | | | | | | Water | - +-h | 16 at 8 5 | |
| Boring completed at 10.0 feet No chemical odor. (1) Water box protective | <u>. 15</u> | - | | | | ! | | | 1 | 1 2 2 2 | | | |
| Boring completed at 10.0 feet No chemical odor. (1) Water box protective | ļ | | | | | | | | roots (OL-ML) 10.0 | 1 | | race at co | |
| No chemical odor. (1) Water box protective | | | 1 | | | | | | | 1 | .011. | | |
| (1) Water box protective | | | | | | | | | Boring completed at 10.0 feet | No ch | emic | al odor. | |
| | Ī | | | | | | | | | • | | | |
| | Ī | | | | | İ | | | | | | | |



DIMENSIONS,

Test Borings and Logs

East Aurora, New York 14052 • (716) 655-1717

ONITORING

OW-52-86 WELL.

SURF. ELEV. _

PROJECT 1E85g

102nd St. Landfill well install. LOCATION Adjacent to OW-51-86, southeast corner of Griffin Park Buffalo Avenue, Niagara Falls, NY

GEOTRANS/EPA and DOJ DATE STARTED 2/20/86 COMPLETED 2/21/86 CLIENT

| DEPTH | P.LE | | | OWS AMPL | | | REC | DESCRIPTION & CLASSIFICATION | WEI | LL | WATER | TABLE & REMARKS |
|------------------|------|--|--|--|-------|--------------|-------|---|-------|---------------|-------|--------------------------|
| feet | S X | 6 | | 12/ 18 | 16/24 | N | N.D.C | DESCRIPTION & CONTRACTION | | | WAIEK | TABLE & REMARKS |
| | | | | | | | | | (: |) | 0 5 | Coarse sil |
| | | | | | | | | Refer to OW-51-86 for stra- | | | | and very f |
| | | 1 | <u> </u> | | | | | graphy of materials above | | | | and fine s size alluv |
| | - | <u> </u> | | - | | | | 10.0 foot depth | | | | sediment t |
| | ļ | <u> </u> | <u> </u> | ! | | | | - | 1 | | | 14.0 feet, |
| | | 1 | ļ | <u> </u> | - | | | | | | ļ | increasing |
| | | <u> </u> | <u> </u> | <u> </u> | _ | | | | | u. | | sand size |
| | | | <u> </u> | | | | | · | | ron | | 18.0 feet over water |
| 5 | - | <u> </u> | | | | | | | pipe | 0 | | sorted and |
| | _ | | | 1 | | | | | ia | l te | | deposited |
| | _ | 1 | | | | | | | 7 |) u | | sand and |
| | | | | <u>. </u> | | | | · · · · · · · · · · · · · · · · · · · | steel | ntc | | gravel to 20.5 feet |
| - | | | İ | | | | ļ | | l . | bei | | over loamy |
| | | Ī | | | | \neg | | | 상 | 4 | | glacial ti |
| 11.1-40/2 123 | | | | | | | | Extremely moist dark gray silt loam (SANDY-SILT) with <5% | black | ement-bentoni | | to end of |
| | | | | | 1 | | | small rounded gravel, very | l | e l | | boring. |
| | | | | | | | ł | loose, noticed slight in- | er | | 9.2 | Noticed |
| | | | | | | | | crease in fine size sand with | et | | | iridescent |
| | | <u> </u> | | | | | | depth, partially deteriorated flat brown organic fiber | ame | | | sheen on |
| i | 1 | 2 | | | | | | oriented horizontally, brown | di | 3 | } | liquid of sample #1. |
| | | | 1 | | | 3 | 11. | medium to fine size nearly | ಲ | | ميط | squipte #1. |
| | | - | | 2 | | | | vertical roots, very loose, | sid | | | (1) Water |
| | | | | | 9 | | ļ | weak thinly bedded, (ML) _{12.0} | _ | | | protec |
| | 2 | 8 | | | | \dashv | ļ | Wet dark gray very fine sandy | | | | tive |
| | | | 7 | 1 | | 15¦ | 19" | loam (SILTY-SAND), mostly | inch | | | casing (2) Super |
| | | | | 8 | 12 | - | | very fine and fine sand size, | l | | | slotte |
| | _ | i I | | | | \dashv | ļ | little silt, one mostly deteriorated soft white shell | Two | | | stainl |
| 5 13 | | 29 | פכ | | | \dashv | - | fragment, few fine size brown | H | | 1 | steel |
| and serve of the | 3 | 2 | | | | | - | nearly vertical roots; loose | | | 15 5 | screen |
| | | | 2 | | | | | weak thinly bedded, (SM), | | j - | | (3) Benton pellet s |
| | | | | 2 | | 4 | 10" | Lgrades downward to-17.0 | (2) |) | | • |
| | | [| | | Ľ. | | | See next sheet. | | | 1 | tinued on |
| | 4 | 5 | | | | | İ | Det heat bheet. | · | | shee | et 2. |

000439

N = NUMBER OF BLOWS TO DRIVE 2 & 3 "SPOON 12 "WITH 140 Ib. WT. FALLING 40 " PER BLOW.



Test Borings and Logs

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Copy

ONTTORING

WELL.

OW-52-86 continued

SURF. ELEV.

| PROJE | CT |
|-------|----|
| 1285a | |

102nd St. Landfill well install. LOCATION Adjacent to OW-51-86, southeas Buffalo Avenue, Niagara Falls, NY Corner of Griffin Park

CLIENT

GEOTRANS/EPA and DOJ

DATE STARTED 2/20/86 COMPLETED 2/21/86

| перт ы | IFIE C | | | OWS AMP | | | | DESCRIPTION & CLASSIFICATION | WET.I. WATER TABLE & | PEMARY |
|-------------------|-----------|--|--------------|--|----------|-----|-----|--|---------------------------------------|---------|
| DEPTH | A Z | 0/6 | 6/12 | 12/ 18 | 10 24 | N | REC | DESCRIPTION & CONSTRUCTION | × | KEMAKK) |
| | 4 | | 7 | | | , , | | Wet dark gray and black silt | | (1) |
| | <u></u> | | | 14 | | 21 | 18" | loam (SANDY-SILT), mostly | | ı pipe |
| | <u> </u> | | | | 131 | | | medium to coarse size sand, little silt, loose weak | | nch fe |
| | 4 | 33 | | | | | | thinly bedded, noticed few | holi | oper |
| 20 | | | 22 | | | | | , coarse size sand lenses | 1 4 | er wh: |
| | 5 | <u>h 2</u> | | | | | | with less silt, very loose, | | ers w |
| | | | 6 | 5 | | | | (SM)-grades downward to 18.0 | r s at] | 15.0 : |
| | | Wet gray gravelly (SAND) | dept | th. | | | | | | |
| | | | | | 4 | | | \ with 15 to 40% mostly sub- | o o o o o o o o o o o o o o o o o o o | ered 1 |
| | | | | ! | | | | rounded fine to coarse size | | i . |
| | | 1 | | | | | | gravel and occasional cob- | 3.0116 | - • |
| | | | | | | | | ble, mostly medium and | Noticed slight | |
| | | | | ĺ | | | | coarse size sand, dense in | sheen to ligui | ā. |
| | | | İ | i | | | | place, loose when disturbedclear transition to | Well screen dr | opped |
| :·5 | | | | | | | | Extremely moist pinkish | about 13 feet | |
| | | | <u>:</u> | | | | | brown gravelly loam (SANDY- | hole (ie botto | |
| | | | | } | | _ | | SILT) with 15 to 25% mostly | screen 20.5-22 | |
| | | <u> </u> | | | | | | subangular dolomitic gravel | depth) after r | emovi |
| | | | | <u> </u> | 1 | | | little fine to coarse size | first auger. | |
| | | | | - | | | | sand, trace clay, loose, | Water table at | 14 8 |
| . 1-v 1994 . 1999 | | | <u> </u> | 1 | | | | massive soil structure, | | |
| | | i | <u> </u> | | 1 | | | (ML) 22.0 | at completion. | |
| | | | - | 1 | 1 | | | | - , | |
| | | | <u> </u> | - | | | | | Augered to 21. | |
| | | | | <u> </u> | | { | | | with 14 inch a | |
| اں د ۔۔۔۔ | | | | ! | | | | Screen-riser apparently | 8½ inch inside meter. | ala- |
| | | | | <u> </u> | | | | slipped by the 2 foot sand head inside augers. | merer. | |
| 1 | | | | ! | | | | nedd inside ddyels. | | |
| | | | | <u> </u> | | | | | | |
| | | | | <u> </u> | | إ | | | | |
| | | | | 1 | !! | | | | | |
| | | | | ļ | | | | | | |
| | - <u></u> | | | | | | | | | |
| | | | | | | | | | | |
| į | | | | | | | | | | |
| 25 | | | | Ī | | | | | • | |

N = NUMBER OF BLOWS TO DRIVE $\frac{2 \cdot 6 \cdot 3}{3 \cdot 0}$ "SPOON $\frac{12}{12}$ "WITH $\frac{140}{140}$ Ib. WT. FALLING $\frac{30}{30}$ "PER BLOW.



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ONITORING

WELL

<u>OW-53-86</u>

SURF. LLL.

PROJECT 102nd Street Landfill well installation LOCATION Near junction of Little Niagara 1E85e

Buffalo Avenue, Niagara Falls, New York and East Branch of Niagara River

GEOTRANS/EPA and DOJ CLIENT DATE STARTED 1/28/86 COMPLETED _

| NEPTH | PLE . | | | OWS AMPL | | | REC | DESCRIPTION & CLASSIFICATION WEI | L WATER TABLE & REMARKS |
|---------------|----------|----------------|----------|--------------|----------|----------|-----|--|-----------------------------|
| DEPTH feet | SAM | 1)/6 | | 12 / / 18 | 11/24 | N | REA | DESCRIPTION & CLASSIFICATION WELL | WATER TABLE & REMARKS |
| | 1 | 9 | | | | | | Frozen dark gray silt loam (SANDY- | |
| | | | 30 | | | | l | SILT) topsoil, few fine brown | Soil fill to 0 |
| | | | | 20 | | 50 | 1 | roots, (ML) 0.5 | feet over most |
| , | | - | | 1 | 12.0 | | 13" | | industrial fly |
| | <u> </u> | _ | | | חח | - | i | mostly flyash and cinders, coarse | and cinders to |
| | 1 1 | 8 | 0 | - | 1. | | ł | silt to medium sand size with | feet over coar |
| | - | <u> </u> | 8 | | - | <u> </u> | | slag gravel and comple size, very | silt and very |
| | 2 | 1 | | <u> </u> | <u> </u> | | | dense in place 3.0 Extremely moist mixed orange and | sand alluvial iment to 18.0 |
| | | <u> </u> | 2 | | ļ | .4 | 5" | dark gray flyash, coarse silt to | over water so |
| | | | | 2 | | - | ا ا | medium sand size, loose | and deposited |
| 5 | | | | | 2 | | | grades downward to 5.0 | mostly sand w |
| | ą | 6 | | 1 | | | | Wet dark gray flyash and cinders | some gravel to |
| | | | רי | | | | | coarse silt to fine gravel size, | 21.0 feet over |
| | | | <u></u> | 8 | i | 19 | 12" | • | loamy glacial |
| | | | <u> </u> | | 11 | | | deteriorated 7.0 | to 41.3 feet |
| | | <u> </u> | | <u> </u> | 1 | | | grades downward to | Lockport Dolor |
| ., | | 14 | | 1 | | | | Wet dark gray cinders, fine sand | |
| | | | 6 | | | | | to coarse gravel size with one | |
| | | 2 | | | | | | concrete fragment, partially de- | |
| | | | 4 | | | 7. | 15" | composed brown paper (bag?) 8.0 | |
| | | | | 3 | | ' | 15 | Extremely moist dark gray silt | |
| าก | | | | | 2 | | | loam (SANDY-SILT) with brown | · |
| | 5 | 3 | | | | | | nearly vertical fine size roots, | |
| | 3 | 3 | | | | | | with partially deteriorated | Continued on |
| | | | ٥ | | | 15 | 26" | brown thin organic fiber orientied | 2. |
| | | | | 7 | | 12 | | horizontally, noticed black or- | |
| | | | | | 5 | | | ganic fiber at 8.0 foot depth | |
| | Ε, | 5 | | ĺ | | | | with one broken glass fragment, | Samples 2,4,6 |
| | | | 6 | İ | | | i | little very fine and fine size | with 2' long |
| | 6 | WH. | | | | | i ' | sand, increasing with depth, | OD sampler. |
| | | | 3 | | | | | 100se, (ML) grades downward to | Samples 1,3,5 |
| | | | | 2 | | 5 | 11" | grades downward to | with 3' long |
| 15 | | | | _ | | | | | OD sampler. |
| | | | | | | | | | on seminater. |
| | 7 | 4 | | ı' | | | | See next sheet. | Used 3' lond : |
| | | | 2 | | | 5- | 22" | | OD spoon for |
| | | | | 3 | | | | | ple 9 - drivi |
| | | | | | 5 | | | | through 1.0 fo |
| | 7 | 6 | | | | | | | of plug inside |

N = NUMBER OF BLOWS TO DRIVE 2 and 3" SPOON 12 " WITH 140 Ib. WT. FALLING 30

gers before san-



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MONITORING

WELL

OW-53-86 continued

| SURF. | FLEV | |
|-------|-------|--|
| JUNI. | LLLY. | |

PROJECT 102nd Street Landfill well installation LOCATION Near junction of Little Niagara

1E85e

Buffalo Avenue, Niagara Falls, New York

and East Branch of Niagara River

GEOTRANS/EPA and DOJ CLIENT

DATE STARTED 1/28/86 COMPLETEL

| | | | | | | | | Sampled to refusal and ins | Sampled to refusal and installed casing 1/31/86. | | | | |
|-------|-------------|---------------|-----------------|----------|-------------|----------|------|---|--|----------------------|--|--|--|
| DEPTH | MPIE NO. | e / | | OWS | | | æ | DESCRIPTION & CLASSIFICATION | ELL | WATER TABLE & REMARK | | | |
| feet | × - | 6 | /12 | /18 | 1 / | N | | | | | | | |
| | 7 | | 6 | <u> </u> | | | | Wet dark gray very fine sandy | 1 | | | | |
| | 8 1 | 2 | | 1 | 1 | | | loam (SILTY-SAND), mostly very | 1 | | | | |
| | | b | 1 | | | | | fine and fine size sand, little silt, loose with thin fine sand | | | | | |
| | | | | 3 | | 14 | 9" | lenses, loose, soil material | | | | | |
| 20 | | | | - | 2 | | | readily liquifies when disturbed, | | | | | |
| | C | 4 | | | | | | \ noticed one clam shell half in | | | | | |
| | | | 4 | | | | 0.11 | \sample 7, (SM tending towards ML) | | | | | |
| | | Ī | | 5 | ! | 9 | 21" | $\frac{1}{2}$ grades downward to $-\frac{18.0}{2}$ | | | | | |
| | | | | | 8 | | | Wet dark gray gravelly loam sand | | | | | |
| | Cv | rd | - <u>i]</u> | n ec | | | | (SAND) with 15 to 40% mostly | 1 | 1 | | | |
| | 10 | 4 | ١ | | (| | | rounded fine size gravel, fine to | | | | | |
| | | | F. | | | | | coarse size sand, trace silt with | | | | | |
| | | | | 6 | | ll i | ۷" | few fine broken shells, compact to 19.0 feet, loose below, weakly | | | | | |
| | | | | | 124 | | | Vetratified (SW) | | | | | |
| 25 | ונו | ام د | | | | | | grades downward to -21.0 | | | | | |
| | | | 25 | | | | | \ Wet pinkish brown gravelly loam | | | | | |
| | | \dashv | | 31 | | 56 | 2211 | (SANDY-SILT) with 15 to 40% | | | | | |
| | | 寸 | 1 | | 33 | | 23" | , mostly subangular dolomitic | | | | | |
| | اد د | Λď | | | | | | gravel, with some fine to coarse | - | | | | |
| | | 1 | 54 | | | | | (size sand, trace clay, compact, massive soil structure, (ML) | | | | | |
| | | $\overline{}$ | | | | \dashv | | grades downward to | ; ; | | | | |
| | 12 | 7= | | | | | | 52.2.2.2 Comment Co | | | | | |
| | 12 | <u> </u> | 15 | | | | | Moist to extremely moist brown | | | | | |
| - | - | | <u>ر .</u> ا | 28 | <u>;</u> | 43 | 12" | gravelly loam (SANDY-SILT) with | | | | | |
| 30 | | - | | 20 | 34 | | | 15 to 40% mostly subangular dolo- | | <u> </u> | | | |
| | | + | | | : <u>34</u> | | | mitic gravel and occasional | | | | | |
| | 73 | | | | 1 | | | cobble, with some fine to coarse | | | | | |
| | - | | DE | | /4" | | 12" | size sand, trace clay, very dense | | | | | |
| | | | | CUU | 1/4 | \dashv | Ì | in place, brittle consistence, massive soil structure, (ML) | | | | | |
| | 14 | | <u> </u> - | | | | į | HESSIVE SOIT SCHOOLITE, (PD) | | | | | |
| | | | 6 | 7.0 | | 146 | 13" | | | | | | |
| | | | | 70 | ! | | j | | | | | | |
| | | | | | 99 | \dashv | | · | | 000440 | | | |
| | 15 | | | | | | | | | 000442 | | | |
| 2 | | <u> 1</u> 8 | 2 | | | 162 | 1 | · | | _ | | | |
| 35 | 1 | | | 80 | | | | | | Continued on she | | | |



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MONITORING

WELL

OW-53-86

GEOTRANS/FPA and DOJ

| SURF | EL EV | | |
|------|-------|--|--|

PROJECT 102nd Street Landfill well installation LOCATION Near Junction of Little Niagara

and East Branch of Niagara River

CLIENT

1E85e Buffalo Avenue, Niagara Falls, New York

DATE STARTED 1/28/86 COMPLETED 1/28/86

| | BLOWS ON SAMPLER | | | |
|----------------------|--------------------|--|-------------|--|
| рертн feet | WAN 0 6 12 16 18 8 | DESCRIPTION & CLASSIFICATION | WELL | WATER TABLE & REMARKS |
| 40 45 50 | 100/4" | Moist to extremely moist brown gravelly loam (SANDY-SILT) with 15 to 40% mostly subangular dolo mitic gravel and occasional cobble, with some fine to coarse size sand, trace clay, very densin place, brittle consistence, massive soil structure, (ML) clear transition to Extremely moist olive gray grave ly loam (SANDY-SILT) with 15 to 40% mostly subangular dolomitic gravel and occasional cobble, with some fine to coarse size satrace clay, very dense in place, brittle consistence, massive soi structure, (ML) 41. | e 0 1 | Samples 19 and 20 taken with 3' long - 3" Ob spoon. Sample 20 taken from 41.0 to 41 foot depth. Advanced 12 inc OD augers (6½ inch ID) into bedrock between 41.3 to 41.8 foot depth. |
| 50 | | | | 000443 |

| N = NUMBER OF BLOWS TO DRIVE "SPOON | <u>12</u> " WITH_ | 140 lb. WT. FALLING | " PER BLOW. |
|-------------------------------------|-------------------|---------------------|-------------|
|-------------------------------------|-------------------|---------------------|-------------|



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MONITORING

OW-53-86 SURF. ELEV. WELL 102nd Street Landfill well installation LOCATION Near Junction of Little Niagara 1E85e Euffalo Avenue, Niagara Falls, New York and East Branch of Niagara River DATE STARTED 1/28/86 COMPLETED 1/28/86 CLIENT . GEOTRANS/EPA and DOJ BLOWS ON DEPTH WY SAMPLER WELL DESCRIPTION & CLASSIFICATION WATER TABLE & REMARKS feet 1001/42 Moist to extremely moist brown Samples 19 and gravelly loam (SANDY-SILT) with 16 70 20 taken with 15 to 40% mostly subangular dolo-86 8" mitic gravel and occasional וויצאווסק spoon. cobble, with some fine to coarse 17 63 size sand, trace clay, very dense

> inch ack s --- clear transition to -~ [Extremely moist olive gray gravelly loam (SANDY-SILT) with 15 to 40% mostly subangular dolomitic \star gravel and occasional cobble, with some fine to coarse size sand trace clay, very dense in place, brittle consistence, massive soil structure, (ML) Advanced augers 0.5 feet

in place, brittle consistence,

massive soil structure, (ML)

Dolomite, brownish gray, hard, fine grained, thinly bedded, with horizontal shale partings spaced 1/8 to 10 inches, little selenite in parting, noticed some stromatolites in partings and small vugs from 41.8 to 46.5 feet

into bedrock

- - -grades downward to 47:3-Dolomite, brown to brownish gray, hard, fine grained, thinly bedded with horizontal carbonaceous shale partings filled with 1/16 to 1/8" selenite seams, pitted from 47.8 to 49.8 feet, noticed vug from 49.8 to 49.9 with abundant stromatolites, noticed some nearly vertical

3' long - 3" OD

Sample 20 taken from 41.0 to 41. foot depth.

Advanced 12 inch OD augers (6) inch ID) into bedrock between 41.3 to 41.8 Foot depth.

| لولع | LON. | Record | rat |
|------|---------------|--------|-----|
| 1 | 41.3- 50.0 | 100% | 46. |
| 2 | 50.0- 57.3 | 100% | 39: |

000444

Continued on sheet 4.

shale partings form 50.1 to 51.0 foot depth with trace selenite present

N = NUMBER OF BLOWS TO DRIVE

RUN

50

cntt ___3

œ[^]

open

Cored

1(4-8-86)



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Copy

| MONITORIN | G | |
|-----------|---|--|
|-----------|---|--|

| WELL | <u> 0W-53-8</u> 6 |
|------|-------------------|
| | |

SURF. ELEV.

PROJECT 102nd St. Landfill well install. LOCATION Near Junction of Little Niagara Falls, NY and East Branch of Niagara Pive

CLIENT GEOTRANS/EPA and DOJ DATE STARTED 1/28/86 COMPLETED 1/28/86

| DEPTH feet | BLOWS ON SAMPLER 0 6 12 12 16 16 17 18 16 18 18 18 18 18 18 18 18 18 18 18 18 18 | DESCRIPTION & CLASSIFICATION | WELL | WATER TABLE & DEMARKS |
|---------------|---|---|-----------|--|
| | | Dolomite, gray, hard, fine grained, thinly bedded with carbonaceous shale partings ½ to 7", filled with little to some selenite, slightly vuggy from 51.6 to 51.7 feet with | core hole | Water loss into bedrock while coring: RUN #1-459 gallo: |
| | | some stromatolites present, horizontal shale partings below 54.3 feet spaced 2 to 7" with no selenite present 57.3 | open | RUN #2-944 gallor Total 1403 gallor |
| | | Coming completed at 57.3 feet. | belo | er table at 6.8 fee ow surface at com- ion of coring. |
| 6.0 | | | | |
| 65 | | | | |
| | | • | | (|
| 70 | | · | | 000445 |

N = NUMBER OF BLOWS TO DRIVE _____ 2 " SPOON ___ 12 " WITH _ 140 Ib. WT. FALLING ___ 30 " PER BLOW.

PELUCOEU DA MESSE M. CHEMPE (COUSACESE)



DIMENSIONS,

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| MONITORING WELL . | <u> 014-54-86</u> | | SL | JRF. ELEV. |
|-------------------|----------------------------------|--|-----------------------------------|-----------------------------|
| • | | ndfill well install. LO ue. Niagara Falls. NY | CATION <u>Southwest c</u> Park | orner of Griffin |
| CLIENT _ | GEOTRANS/EPA | anĉ DOJ DA | TE STARTED 2/14/86 | COMPLETED 2/14/86 |
| DEPTH WY | BLOWS ON SAMPLER 0 6 12 18 24 N | REC DESCRIPTION & CLASSIFICA | TION WELL | WATER TABLE & REMARKS |
| | ε 7 12 | Frozen dark brown (CLAYEY-SILT) top | 1 - | 0.5 Mostly soil fill to 4.0 |

feet over (No recovery) mostly incir. erated gar-Extremely moist mixed black and distinctly mottled olive bage to 8.2 · 5 * gray mostly silt loam (CLAYEY - 0 feet over coarse silty SILT) soil fill with 5 to 15% alluvial sed slag fragment - - - grades downward to -4:0 N iment to end of boring. Wet brown cinders, wood fragments, sand and gravel size Well install -- - assumed -- -ed approxi-Wet black cinders, burnt mately 3 fee \ paper and wood, sand and north of \gravel size, very loose - - grades downward to - 6.0 sampled-des-9 8 3 cribed site Wet black cinders, sand and due to sand gravel size, gravel size slag bridge while and wood fragments, loose, 12" attempting to install Extremely moist dark brown **奶10.0** well. silt loam (SANDY-SILT), little very fine and fine size Noticed innertube in sand, very loose, brown part auger debris between ially deteriorated flat 6.0-8.0 foot depth. organic fiber oriented horizontally, reddish brown fine (1) Water box protecnearly vertical roots, (ML) tive covering. (2) Cement-bentonite

- Boring completed at 10.0 feet, ,

| 15 | | | | powder seal. |
|----|--|--|--|--|
| | | | | Water table at 8.5 feet at completion. 000446 |
| | | | | 2 "SPOON 12 "WITH 140 lb. WT. FALLING 30 "PER BLOW. ns/Soil Scientist 2007 1 07 1 |



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MONITORING

WELL <u>OW-55-86</u>

SURF. ELEV.

PROJECT 1E85g 102nd St. Landfill well install. LOCATION Southwest corner of Griffin Buffalo Avenue, Niagara Falls, NY Park

CLIENT GEOTRANS/EPA and DOJ

DATE STARTED 2/17/86 COMPLETED 2/18/86

| PARDEN. | TIE | DLOWS ON SAMPLER | | | 250 | DESCRIPTION & CLASSIFICATION | | | WATER TABLE & REMARKS | | |
|----------------------------|----------|------------------|------|--|----------|------------------------------|-----|---|-----------------------|-------------|-----------------------------|
| р э ртн feet | SAM Z | 6 | 6/12 | 12/ 18 | 10/24 | N | REC | DESCRIPTION & CLASSIFICATION | WEI | • T | WAISK TABLE & BRAAIKS |
| | | <u> </u> | | <u> </u> | | | | | (2 |) | 0.5 |
| | | <u> </u> | | - | | | | D C | | | Started sampl |
| | | | | ╁╴ | | | | Refer to OW-54-86 for des- cription of alluvial sedi- | | | in coarse sil |
| | | | | 1 | | | | ment and incinerated garbage | pe | u t | fine sand all vail sediment |
| | | | | | | | | and soil fill above 10.0 foot depth. | pipe | grou | to 21.0 feet |
| | | | | | | | | root depth. | ee1 | 9 0 | water sorted |
| | | | | <u> </u> | | | | | البدا | اس ۔ | deposited sar to 22.5 feet |
| ٠ ۾ | | - | | | | | | Extremely moist dark gray | S S | ton | loamy glacial |
| | | | | | | | | silt loam (SANDY-SILT), lit- | black | -bent | till to end of boring. |
| | | | | ļ | | | | tle very fine and fine size sand, very loose, brown par- | | | borring. |
| | | | | <u> </u> | <u> </u> | | | tially deteriorated flat | ameter | en t | (1) Bentonite |
| | | | | <u> </u> | | | | organic fiber oriented hori- zontally, few reddish brown | ete | еше | pellet se (2) Protectiv |
| 1 | | | | | | | | nearly vertical roots, (ML) | аш | ပ — | casing. |
| | | | | | | | | • | di | | |
| | | | | <u> </u> | | | | | side | (1 | |
| 10 | | | | | | | | | isi | | |
| 101 | , | 1 | | | | | | | H H | | 10.2 |
| | | | 12 | 0 | | ∠3 | 2 " | • | inch | | |
| | | | | 2 | | | 2 | | 11 | | |
| | | | | | 7 | _ | Ì | | 2) | | |
| | 2 | WR | 2 | | | | | 13.0 | - | | |
| 1 | | | | | | 6 | 4 B | grades downward to | Two | | 0 |
| | | | | | 4 | | | (SANDY-SILT) with little very | • | | |
| | 3 | 3 | | | | | | fine and fine size sand, | | | |
| - 25 | | _ | 4 | | | 1 7 1 | 4 = | loose, tends to liquify when disturbed | | | |
| - | | | | 3 | 3 | \dashv | | | | | 000447 |
| | 4 | | | | - | _ | | | | | Continued on |
| Ī | | | 5 | | | | | | | | sheet 2. |

| N = NUMBER OF BLOWS TO DRIVE | 2 | " SPOON _ | 12 " WITI | 140 | Ib. WT. FALLING | 30 " PER BLOW. |
|------------------------------|---|-----------|-----------|-----|-----------------|----------------|
|------------------------------|---|-----------|-----------|-----|-----------------|----------------|



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East Aurora, New York 14052 • (716) 655-1717

(icpy

NITORING WELL

OW-55-86

SURF. ELEV.

| PROJECT | 102nd St. Landfill well install. LOCATION | Southwest corner of Griffin |
|---------|---|-----------------------------|
| lE85g | _Buffalo Avenue Niagara Falls NY | Park |

CLIENT GEOTRANS/EPA and DOJ DATE STARTED 2/17/86 COMPLETED 2/18/86

| | 7 TE | | | OWS AMPI | | | | DESCRIPTION & CLASSICATION | | MATER TARIE P BELLARIC | |
|---|------------|----------|-------|-------------|----------|----------|-----|--|-------------------------|----------------------------|--|
| DEPTH feet | NAN NAN | 0/6 | 6/12 | 12/ /18 | 16/24 | ĸ | REC | DESCRIPTION & CLASSIFICATION | WELL | WATER TABLE & REMARKS | |
| | 4 | | | 1 | 4 | | | Wet dark gray silt loam | scree ck | | |
| | 5 | 3 | | <u></u> | | | | (SANDY-SILT) with little very fine and fine size sand, | ed gg y | | |
| | | | 3 | 111 | | 14 | 12" | loose, tends to liquify when | ٠- الـ بـ | | |
| 20 | - | | | | 15 | | | disturbed 19.0 | slott steel | | |
| | | 19 | | i | 1 3 | | | Wet mostly dark gray sandy | Sas | | |
| | | | 22 | | | | | loam (SILTY-SAND) with fine | # 0 0 | | |
| | | | | 25 | • | 47 | 22" | to medium size sand, little | uper ainl blen | | |
| | | | | <u> </u> | 111 | | | 'silt, compact, material tends to liquify when disturbed, | Super stain L ble | | |
| AND THE STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET, | 1 -7 | Ε. | | 1 | | | | (SM)-grades downward to-21.0 | St St | 22.5 | |
| | | | | 1 3 | | 2 | 14" | Wet brown loamy sand (SAND) | 1 | | |
| | | | | - | E | | | with 5 to 30% mostly sub- | Spe | 24.0 | |
| | | | - | <u> </u> | | | | rounded gravel, dense, loose when disturbed, with fine to | 92 | <u> 47. V</u> | |
| 25 | | | | | | | | coarse size sand, trace silt, | | table at 11.0 | |
| | | | | | | | | noticed several white shell | 1 | below surface a Letion. | |
| | | | | | | | | fragments at 21.5 feet, (SW) 22.0 | _ | ic crom. | |
| | | | | | | | | Wet dark gray sandy loam | | | |
| | | | | | | | | (SILTY-SAND) with fine to | | | |
| rangelinear sa | | | ! | | | \dashv | | medium size sand, loose, 22.5 Extremely moist to wet red- | | | |
| | | \dashv | | | | \dashv | | dish brown silt loam (SANDY- | | | |
| | | | | | i | | | SILT) with 3 to 5% fine size | | | |
| | | | | | | | | gravel, with very fine size sand, loose, trace clay, | | | |
| 30 | | | 1 | | | | | massive soil structure, (ML) | | | |
| | | | | | | | | 24.0 | | | |
| į | - | | | | | _ | | Boring completed at 24.0 feet | | | |
| ! ! | | | | | | | | Dolling completed at 24.0 feet | • | | |
| | | -+ | | | - | | | | | | |
| | | | | | 1 | \dashv | | | | | |
| | İ | | | | i | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | 000449 | |
| 2.5 | | | | | | | | | | | |

N = NUMBER OF BLOWS TO DRIVE $\frac{2}{2}$ "SPOON $\frac{12}{2}$ "WITH $\frac{140}{2}$ Ib. WT. FALLING $\frac{30}{2}$ " PER BLOW.

אפיטטטער פער בייב או היבשבי וניטין ייב אד אוייסטן אייביי



DIMENSIONS,

Test Borings and Logs

East Aurora, New York 14052 • (716) 655-1717

ONITORING

WELL . OW-57-86

SURF. ELEV.

1E85g

PROJECT 102nd St. Landfill well install

LOCATION West central Griffon Park near Little Niacara

CLIENT

Buffalo Avenue, Niagara Falls, NY GEOTRANS/EPA and DOJ

DATE STARTED 2/13/86 COMPLETED 2/14/86

| | | <u> </u> | | BLOWS ON SAMPLER | - | DEC | | | | |
|---|-------------------|---------------|---------|---------------------|-------|-----------|--|--------------|---|---|
| | DEPTH feet | SAMFIE NO. | U/6 | 6 12 18 24 | ĸ | REC | DESCRIPTION & CLASSIFICATION | WE: | LL WATE | R TABLE & REMARKS |
| | | 1 | 18 | 21 16 | 37 | 24" | Frozen dark gray silt loam (CLAYEY-SILT) topsoil with few glass fragments, (ML) 0.5 Moist mixed dark gray about equal proportions silt loam (CLAYEY-SILT) soil fill and | | 0.5 | Difficulty augering wi 14 inch, 8½ ID augers, from surface to 2.0 |
| | 5 | 2 | 4 | 12 | 6 | 3" | flyash and cinders, mostly coarse silt to fine sand size cocasional gravel size, one gravel size slag fragment, few glass fragments grades downward to- Moist mixed mostly dark gray to black with orange flyash | steel pipe | grant | foot depth. Soil fill t 0.5 feet ov mixed soil fill and incinerated |
| | | 3 | 2 | 1 2 | 7 | (,) k | land cinder, coarse silt to gravel size, compact grades downward to -3:0- Extremely moist mostly brown mixed silt loam (SANDY-SILT) soil fill with cinders, plas- tic fragments, one concrete | ameter black | ement-bentonite | sanitary ga bage to 2.0 feet over flyash and cinder to 3 feet over mixed soil |
| _ | | 5 | 4 | 4 4 6 | . 8 | 10" 2" | ifragment, very loose grades downward to - 5.0 Wet mostly dark gray one distorted plastic fragment 3" long, mixed with (SANDY-SILT) soil fill and cinders, loose grades downward to -8.0- | inside di | (2) | be inciner- ated sanita garbage) to |
| | | 5 | e WH | 8 ' 8 WH | WH | , H | Wet dark gray mixed cinders with partially decomposed purple color carbon paper, glass, wood, plastic 9.5 | (2) | pual que la la la la la la la la la la la la la | 9.5 feet ov coarse-very fine and fi size sand t 24.0 feet |
| | Ľ | 7 | WR | WH 3 | \\ \2 | 15" | Extremely moist dark gray silt loam (SANDY-SILT) with numerous highly decomposed reddish brown organic fiber oriented horizontally, loose, | TwC | ial coarse pack | over water sorted and deposited mostly sand and gravel |
| • | | 8 | WR | 2 | | | (ML) 10.0 See next sheet. | | Specont Conspec Conspec | inued on t 2. |

000449

N = NUMBER OF BLOWS TO DRIVE 2 & 3 " SPOON 12 " WITH 140 Ib. WT. FALLING 30 " PER BLOW.



DIMENSIONS, $I \mathbb{N} \mathbb{C}$.

Test Borings and Logs

East Aurora, New York 14052 • (716) 655-1717

MONITORING

WELL · OW-57-86 continued SURF. ELEV.

1E85g

PROJECT 102nd St. Landfill well install. LOCATION West central, Griffon Park, Buffalo Avenue, Niagara Falls, NY near Little Niagara River

CLIENT GEOTRANS/EPA and DOJ DATE STARTED 2/13/86 COMPLETED 2/14/86

| DEPTH | 4716 | | | OWS AMPI | | | REC | DESCRIPTION & CLASSIFICATION | WELL | HATED | TABLE & REMARKS |
|-------|--|---------------|------|--|--------------|------------------|-------------|---|------------|--------------|---------------------------|
| feet | SAR | 0/6 | €/1: | 12/ | 16/24 | N | | | 1 | WATER | TABLE & REMARKS |
| | 8 | <u> </u> | W | . | | | 2 A # | Wet dark gray silt loam (SAND | 7= | - | assumed 25 |
| | <u></u> | - | | <u> </u> | | ⟨2 | 20 | | | | feet over |
| | | <u> </u> | | | 2 | | | land fine size sand, weak thin ly bedded, (ML tending toward | | | very loose glacial ti |
| | 9 | WR | | - | | | | (15M) 13.0 | 1D e1 | | to end of |
| 2.0 | | | W | | | ∢ 2 | 14" | (SM) grades downward to = 3.0 - | S to | | boring. |
| | | 1 | - | 1 | | | | Wet dark gray very fine sandy loam (SILTY-SAND) with <2% | 4 | 120.5 | , |
| | - | 1 | | 1 | 2 | | | i fine size gravel, very loose, | en ' | 1 | WH - Split |
| | 140 | WR | | | | | | weak thinly bedded with thin | ted | | spoon samp penetratio |
| | - | | WR | - | | ⟨2 | 8" | coarse silt lenses, soil ma- | otted | 5 | with weigh |
| | | | | 11 | h | | | !disturbed, mostly very fine | slc eel | 2 | of rods an |
| | 7 7 | 2 | - | İ | | | | and fine size sand, some silt | 5 ster | | hammer. |
| | | | 2 | | | | | few very fine broken white | L | | WR - Split |
| , | | | | hп | | 134 | 12" | shell fragments, (ML) 15.0 grades downward to-15.0 | les |) | spoon samp |
| 25 | | | | Ī | 1 4 | | | . Wet dark gray silt loam | dh | 1 | penetratio |
| | 12 | 7 | | | | | | (SANDY-SILT), very loose, som | Sto S | 22.5 | with weigh |
| | | | 1 | | | | 4 8 | livery fine and fine size sand, | _ | 4 | of rods on |
| | | | | 1 | | 2 | 4 " | weak thinly bedded, few very fine broken white shell frag- | 9 | 1 | No recover |
| | | | | <u> </u> | 1 | | | Iments (MI.) | |) | to 3° OD-3 |
| | 13 | WR | | | | | | $1 = -\text{grades downward to} = \frac{17.0}{1}$ | 2 | 7 | sampler #5 |
| į | | | WP. | | <u> </u> | WR: | 12" | wet dark gray very fine sandy | | | spoon, res |
| | | | _ | WR | | | | loam (SILTY-SAND), very fine | | İ | OD-2' samp |
| | | | | - | WR | | | <pre>tand fine size sand, little isilt, weak thinly bedded with</pre> | | 29.0 | |
| | | | | <u> </u> | 1 | _ | | Ithin coarse silt lenses, very | | | WH, 1,1,2 |
| 3.0 | | | | - | | | | lloose, soil material tends to | (1) | Protec | blows. ctive cover |
| | | | | | <u> </u> | | | lliquify when disturbed, (SM | | | nite pellet |
| | | | | | | - | | tending towards ML) Lgrades downward to-24.0 | İ | seal. | |
| | | | | | | | | g14400 40424 10 | C | 7 # . | |
| Ì | | | | ! | | \dashv | | • | | | l,3, and 5 with 3' lon |
| | | | | | | | | | | | it spoon sa |
| İ | | | | | | | | See next sheet. | pler | | • |
| İ | | | | | | \neg | | | | | |
| | | | | | | \dashv | | | | | |
| 35 | | $\overline{}$ | | | 1 | _ | | | | | on sheet 2 |

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Krelmina

Test Borings and Logs

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Copy

MELL

OW-57-86 continued

SURF, ELEV.

PROJECT

102nd St. Landfill well install. LOCATION West central, Griffon Park,
Buffalo Avenue, Niagara Falls, NY near Little Niagara River

CLIENT GEOTRANS/EPA and DOJ

DATE STARTED 2/13/86 COMPLETED 2/14/86

| DEST | IFIE D. | | | OWS AMP | | | DESCRIPTION & CLASSIFICATION WATER TABLE & REMARKS |
|--------------|--|--|--|-----------------|--|--|--|
| eet | DEPTH NO. | 0/6 | <u>ئ</u> ا | 2 12 | 18/24 | Ň | DESCRIPTION & CLASSIFICATION WATER TABLE & REMARKS |
| | - | - | - | - | +- | - | Wet gray gravelly loamy sand Samples 2.4.6-13 se |
| | <u> </u> | + | ┼ | | +- | | Wet gray gravelly loamy sand Samples 2,4,6-13 se (SAND) with 15 to 25% mostly cured with 2' long |
| | <u> </u> | ╁ | | $\dot{\dagger}$ | † | | rounded fine to medium size OD split spoon sam- |
| 20 | <u> </u> | i - | İ | i | | | gravel, fine to coarse size pler. |
| | <u> </u> | | | i - | i | | sand, trace silt, with few white broken shells, compact No very loose till |
| | | | | | | | to 25.5 feet, very loose below observed in split |
| | | | | | | | weakly stratified, (SM) 25 5 spoon sample 12 be- |
| | | <u> </u> | | | | | assumed based on blow counts- tween 25.0 and 27. |
| | | 1 | <u> </u> | <u> </u> | | <u> </u> | Wet pinkish brown gravelly loam foot depth. Notice (SANDY-SILT) with 15 to 30% pinkish brown color |
| | <u></u> | <u> </u> | - | + | <u> </u> | <u> </u> | mostly subangular dolomitic on plug driver after |
| | | 1 | <u> </u> | - | - | | / gravel, little fine to medium augering from 25.0 |
| | | | 1 | + | + | 1 | / size sand, very loose, massive to 27.0 foot depth. , soil structure, (ML) 29.0 |
| りに | | | <u> </u> | +- | | | SOLI STRUCTULE, (ML) 29.0 |
| remant villa | | | İ | | i | | // /Boring completed at 29.0 feet. Water table at 10.1 |
| | | - | | | + | İ | feet below surface |
| | | | | 1 | 1 | İ | 11:15 am on 2/14/86 |
| | | | | | | | after sampling to 2 feet on 2/13/86. |
| | | | | | | | |
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| | <u> </u> | <u> </u> | <u> </u> | <u> </u> | | | |
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| 30 | | | | 1 | <u> </u> | | |
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| 35 | | | | | | | |

N = NUMBER OF BLOWS TO DRIVE 2 & 3 "SPOON 12 "WITH 140 Ib. WT. FALLING 30 " PER BLOW.



Test Borings and Logs

East Aurora, New York 14052 • (716) 655-1717

NITORING

<u>0W-58-86</u>

GEOTRANS/EPA and DOJ

SURF. ELEV.

PROJECT

102nd St. Landfill well install.

LOCATION <u>Outside of fence</u>, south of <u>Buffalo Ave. west of restau-</u>

CLIENT

Buffalo Avenue, Niagara Falls, NY

rant-lounge
DATE STARTED 2/5/86 COMPLETED 2/6/86

| DEPTH | II . | BLOWS ON SAMPLER | | | | | | | | | WATE | PARIE R DELLARMA |
|----------------|------|------------------|-------|-----|------|----|-----|---|--------------|-----------------|--------------------|--|
| feet | SAM | 6 | 6/12 | 12/ | 16/2 | N | REC | DESCRIPTION & CLASSIFICATION | ME | LL | WAIRK | TABLE & REMARKS |
| feet | 2 | 8 | 5 5 5 | 7 | 7 | 12 | 9" | Extremely moist black silt loam (SANDY-SILT) topsoil fill, with little fine and medium size sand, few fine size reddish brown roots, compact, (ML) 0.5 Extremely moist reddish brown (SILTY-CLAY) fill, stiff, with few fine gravel size broken brick fragments 1.0 Extremely moist black flyash and cinders, fine sand to fine gravel size, compact 1.5 Extremely moist white unknown | d 2 ID black | and pack | 2.0 | Soil fill to 1.0 feet ove flyash and cinders to 1.5 feet ove unknown whit material to 2.1 feet ove coarse silty lake sedimen to 4.2 feet over clayey lake sedimen to end of |
| T COMMANDE COM | £ | 7 | 14 | 22 | 28 | 37 | 19 | substance, angular fine sand to fine gravel size 2.1 Extremely moist distinctly mottled brown silt loam (SANDY-SILT), compact, thinly bedded between 2.1 and 2.5 foot depth, with one bedded zone between about 2.9-3.1 foot depth, one thin bed black at 2.5 foot depth, little to some fine size sand, noticed few dark brown vertical roots, (ML) 4.2 Moist distinctly mottled red- | Super #6 s | Special blend s | | Samples 1 & were obtaine in same hole prior to aug ering with 1 inch auger, 8½ inch incheside diamete augers. |
| 7 | | | | | | | | dish brown (SILTY-CLAY), stiff, thinly laminated with very thin coarse silt lenses, with fine gravel size white calcium carbonate concretions (CL)-grades downward to-5.5 Moist faintly mottled redish brown (SILTY-CLAY), hard thinly laminated with very thin coarse silt lenses, (CL) grades downward to-9.0 See next sheet. | (3 |) E s | eal. Protection | nite pellet ctive waterbo |



Test Borings and Logs

East Aurora, New York 14052 • (716) 655-1717

| 0 | N | Ι | T | 0 | R | Ι | N | G |
|---|-----|---|---|---|---|---|---|---|
| | 1.7 | | ۲ | † | | | | |

OW-58-86 continued

1E85e

PROJECT 102nd St. Landfill well install. LOCATION Outside of fence, south of Buffalo Avenue, Niagara Falls, NY

Buffalo Ave., west of restau-

CLIENT

GEOTRANS/EPA and DOJ

Buffalo Aver. rant-lounge. ED <u>2/5/8</u>6 COMPLETED <u>2/6/86</u> DATE STARTED

| | <u>"</u> | BLOWS ON SAMPLER 0 6 6 12 12 15 15 24 N | | | | | | | | |
|-------|-------------|--|-----|--|--|----------|--------------------------------|----------------------|--|--|
| DEPTH | SAM | 6 | 6/1 | 112/ 2/16 | 11./24 | N | DESCRIPTION & CLASSIFICATION | WATER TABLE & REMARK | | |
| Teel | | 1 | 7 - | 1 | 1 | - | | | | |
| | | | | | | \Box | | | | |
| | | | | T | | | | | | |
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| | | ĺ | | | | | | | | |
| | | | | \mathbb{T} | | | Extremely moist grayish brown | | | |
| | | ļ | | | | | (SILTY-CLAY), hard, thinly | | | |
| | | | | | | | laminated with very thin coars | е | | |
| | | | | | | | silt lenses, (CL) | | | |
| 5 | | | | <u> </u> | <u> </u> | | 10.0 | | | |
| | | | | <u> </u> | <u> </u> | | 70.0 | | | |
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DIMPREZONS,

Test Borings and Logs

East Aurora, New York 14052 • (716) 655-1717

WELL

OW-59-86

GEOTRANS/EPA and DOJ

| CLIDE | EL D | |
|-------|-------|--|
| SURF. | ELEV. | |

1E85g

CLIENT

PROJECT 102nd St. Landfill well installation

Buffalo Avenue, Niagara Falls, NY

LOCATION Within 30 ft. inside of fence, just west of restaurant/lounge

DATE STARTED 2/7/86 COMPLETED 2/7/86

| DEPTH | ANE. | | | OWS AMPL | | | REC | DESCRIPTION & CLASSIFICATION | W | | WATER TABLE & REMARKS |
|------------------|------|----|----|--|--|--|-----|---|------------|---------------|--------------------------------|
| feet | X X | 6 | | 12/18 | | N | | | | | WHITE THE EXPENSE |
| | 1 | 4 | | | | | | Slightly frozen olive brown silt | | | Mostly soil f |
| | | | ٦ | | | | | loam (SANDY-SFEE) topsoil, little | | | to 2.5 feet c |
| | | | | 14 | | 7 | 7" | \ fine and medium size sand, loose, | (3) | | |
| | | | | | 4 | | | many brown fine size roots, (OL-ML) | | | 1.9 assumed 5.0 f |
| | | _ | | - | 1 | | | 0.5 | 4 | | (poor recover |
| | 2 | 2 | ć | | | | | Extremely moist dark gray silt loan | 4 | (2) | 3.0 sample $\#3$) or |
| | | | 4 | 1 | | -ڊ 1 | 7" | (SANDY SHEET) #311, little fine and | | - | mostly flyasi |
| | | | | 9 | | | | medium size and, loose, few brown | - - | | 3.5 cinder to 8. |
| | | | | | п2 | | | \fine size rt in noted one gravel \size white substance about 1" in | stain- | ار | feet over cla lake sediment |
| | 3 | 4 | | | | | | diame: (b. 2.5 | ta | pack | end of boring |
| 5 | | | 3 | | | 5 | 6" | Wet white shy to, coarse silt to | ء ما ا | بق | |
| | | | | 2 | | 2 | В | fine samé sa , with thin black | Peg | sand | (1) Cement- |
| | | | | | 2 | | | 3 1/00 | | S | bentonite |
| | 4 | 2 | | Ì | | | | 1 tense 1/8 / 1 18 5.0 | 1 m- | blend | grout. (2) Bentonite |
| | | | ٦. | i - | | | | ! Wet block flips is and cinder, | 9,0 | e le | pellet se |
| | | | | | <u></u> | 2 | 2" | \ coarse silk i coarse sand size, | 3 to 6 | | (3) Two inch |
| and the same and | - | | | 1 - | | | | \100se 6.0 | er | ၂ ကျွ | h 1 n n l |
| | | | | <u> </u> | ן ו | | | and the second second ward to an analysis | Super | ar | 8.5 pipe. |
| | 5 | 5, | | ! | | | | Wet monthly or a gray flyash and | | 8 | 8.5 |
| ; | | | 7 | | <u> </u> | ן מו | 16" | γ cinders, cosmodulit to medium sand | 4 | | |
| | | ٠ | | 12 | | ر لــــــــــــــــــــــــــــــــــــ | 10 | size, very locas, one gravel size | | <u>8</u> | |
| 10 | | | | | 14 | | | red broken late fragment (noticed | 1 | S | 10.0 |
| | | | | Ì | | | | medium to cost we sand size cinders | | | |
| | | | | i - | | | | 8.5 | Wate | er t | able at 2.8 feet |
| | | | | | | | | Extremely notice distinctly mottled | la | » su | rface at 10 am be |
| | | | | | | _ | | qrayish have TINY-CLAY), very stiff, timing leadnested, (CL) 10.0 | sec | curi | ng sample #3 beta |
| | | | | <u> </u> | | | | Sully willing a sulfaces, (CD) 10.0 | 1 | | 0 foot depth at 8 |
| ~> === | | | | <u> </u> | | _ | | Boming complex at 10.0 feet. | 9:(| 00am | l. |
| | | | | | | | | | Ann | 7070 | d to 9.0 feet wit |
| | | | | | | | | | , . | - | h augers, 8% inci |
| | | | | | ! | | | | | | diameter. |
| ļ | | | | | j | | | | | 3 - 40 | Caldin boa i |
| 7,5 | | | | | | | | | | | |
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000454

N = NUMBER OF BLOWS TO DRIVE 2 "SPOOK 12 "WITH 140 Ib. WT. FALLING 30 PER BLOW.



Test Borings and Logs
East Aurora, New York 14052 • (716) 655-1717

MONITORING

| WELL | OW-6 | 0- 86 |
|---------|------|------------------|
| للبلسلة | | |

SURF. ELEV.

PROJECT <u>102nd St. Landfill well install</u>, 1E85e <u>Buffalo Avenue</u>, <u>Niagara Falls</u>, NY

LOCATION Between outside fence and
Buffalo Avenue

CLIENT GEOTRANS/EPA and DOJ

DATE STARTED 2/5/86 COMPLETED 2/6/86

| DEPTH | IPLE D. | | | OWS | | | REC | DESCRIPTION & CLASSIFICATION | ATT T | WATER TABLE & REMARKS |
|----------|--------------|----------------|--------------|------------|----------|----------|-----|--|----------------|-------------------------|
| fee+ | XX. | ٧/ | 6/12 | 12/ /18 | 16 24 | ĸ | | DESCRIPTION & CLASSIFICATION | WELL | WATER TABLE & REMARKS |
| 1 | 1 | 3 | | | | | | Slightly frozen to 0.5 feet, | (3) | 0.5 Mostly cin- |
| | | | 4 | | | | | moist below mostly black cin- | | der and fl |
| | | | | 3 | | 7 | 7 * | ders and flyash and one gra- | | ash fill t |
| | | | | 1 | 3 | | | vel size slag, fine sand to | 1 1 | 2.0 feet |
| | 2 | 6 | | - | 2 | | 1 | fine gravel size, loose, with | [] e | over mixed |
| | | 0 | | | | | | reddish brown medium size | <u> </u> | 2.5 cinders an |
| | | | 11 | | ! | 23 ! | 12" | ', roots to 0.5 foot depth, wood | 20 | flyash and |
| ļ | | | | 12 | | | | stem at surface 2.0 | 1D e1 | soil fill |
| | | | | | 10 | | | grades downward to- | G G | 2.5 feet o |
| j | 3 | 3 | | | | | | Extremely moist mixed black | 2 x | 4.5 disturbed |
| 5 | | i | <u>-</u> | | | | | and dark gray cinders, flyas | i le | l orraring. |
| | | | ٠. | 9 | | 12 | 13* | and silt loam (SANDY-SILT) | | silty soil |
| ŧ | | | | 7 | 17 | \dashv | | fill, with one gravel frag- | screen | 4.0 feet o |
| 1 | | | | | 1 | | | ment, loose, noticed deter- | ed scree | silty lake |
| 1 | 4 | 3 | | | 1 | | | ment, loose, noticed deter- iorated stem at 2.5 feet 2.5 Extremely moist mixed dark | رن ا دیــ | sediment t |
| | | | 17 | | | 1 | | brown and faintly mottled | steel steel | 5.0 feet o |
| | | | | 2 | | 41 | 18" | I menuich become sile loom | ster | |
| | ĺ | | | | 36 | İ | | (CLAYEY-SILT) disturbed original | % SS 3 | sediment t |
| Ī | 5 | ٥١ | | | | | | (CLAYEY-SILT) disturbed original soil, very stiff, (ML) Extremely moist to wet distinctly mothled olive brown | r es | end of |
| Ì | | 1 | 12 | | | | | 4.1 | a L | boring. |
| İ | i | | | 20 | <u> </u> | 32 i | 19" | Extremely moist to wet dis- | C ta = | |
| ŀ | | - | | | | | | tinctly mottled olive brown | <u>က ၈</u> ရ | 5 Samples 1 |
| امـــا | | | | | 23 | | | silt loam (CLAYEY-SILT) firm | 50 | 10° and 2 take |
| | | | | | | | 1 | thinly laminated with very | with | out hollow stem |
| ĺ | - [| - 1 | | | | | | thin coarse silt lenses, with | auge | r, augers 14 inc |
| Ī | | Ī | | | 1 | | | reddish brown partially deter | -8½ in | nch inside dia- |
| Ī | | | | | | | | iorated root and with numerou | mete: | r. |
| + | | \dashv | 1 | | | | | black fiberous roots at base | | ced concrete blo |
| | | | <u> </u> | | + | _ | | (ML) 5.0 | 110 521 | een 0-2.0 foot d |
| | | | | | | _ | | Moist faintly mottled red- | | |
| | | | ! | | | | | dish brown (SILTY-CLAY), hard | (1) (| Cement-bentonite gro |
| <u> </u> | | _ | | | | | | thinly laminated with very | (2) | bentanite pellet sea |
| | 1 | | | İ | 1 | | | thin coarse silt lenses, | | Protective water b |
| 75 | İ | | 1 | | Ī | | | with occasional fine sand | C | casing. |
| | 1 | I | 1 | Ī | | \neg | | size calcium carbonate | ate | r table at 6.0 f |
| - | 1 | - i | 1 | | | \dashv | | concretions, (CL) | | :30 am on 2/6/86 |
| - | - ! | + | - 1 | | + | _ | | 10.0 | | re drilling, bas |
| - | | | | | | _ | | | | ater marks on ro |
| i | l | - 1 | i | ı | | i | | Boring completed at 10.0 fee | | |

000455

N = NUMBER OF BLOWS TO DRIVE ______ " SPOON _____ " WITH ____ 14 0 ____ Ib. WT. FALLING _____ 30 __ " PER BLOW.



DIMENSIONS,

Test Borings and Logs

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MONITORING

| WE <u>LL</u> | <u>OW-6</u> | 1 | - | 8 | б | |
|--------------|-------------|---|---|---|---|--|
|--------------|-------------|---|---|---|---|--|

SURF. ELEV. _

| | P | R | ٥. | JEC' | I |
|---|---|---|----|------|---|
| 1 | Ε | 8 | 5 | q | |

CLIENT

102nd St. Landfill well install. LOCATION Approx. 35 ft. south of fence

2/10/86 COMPLETED 2/11/86

| DEPTH W SAMPLER SAMP | | | | CAMPIED | | | | | | |
|--|--------|----------------|------|--|----------|-----------------|-----|---|----------------|-------------------------------------|
| FOO+ | SAM ON | 6 | 6/12 | 112/ | 18/24 | К | REC | DESCRIPTION & CLASSIFICATION | WELL | WATER TABLE & REMARKS |
| | 1 | | | | | | | Slightly frozen dark brown | 1 | Soil fill |
| | | | 9 | | | 18 | 13 | silt loam (SANDY-SILT) top- | ec.] | 0.5 feet o |
| | | | | 9 | | 1 0 | 13 | \\ soil, loose, few fine brown | t the | mostly whi |
| | | | | | 8 | | | $\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $ | ים נ | sludge to |
| | 2 | 1 | | Π | | | | $\setminus \setminus$ Extremely moist white sludge | 상 | 0.7 feet o |
| | | _ | 7 | | | | | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ | ত ── | $\frac{12.5}{}$ mostly soi |
| | | | | 1, | | 2 | 4. | \size, compact, 0.7 | | fill to 1. |
| , | | | | | 1 | | | Extremely moist brown silt | <u>(2)</u> | 1000 0001 |
| ! | | | | | 1 1 | | | \ loam (SANDY-SILT) fill with \(\)\ to 15% black flyash, little | | mostly whi |
| | 3 | 2 | | - | | | | fine size sand, compact, (ML | | sludge to |
| 5 | | | 1 | | 1 | 2- | 2 " | 1 (1.1) | ∄ _ ∵ | 1 |
| | | | | 11 | | | - | | | 5.5 mostly fly and cinder |
| | | | | <u> </u> | 1 1 | | | Extremely moist white sludge coarse silt to fine sand size compact, | bly Sire | # 7 0 feet o |
| | Ą | 1 | | | | | | compact, | ot ie t | clayey lak |
| | | | י | | | _ | | i 'clear transition to ' | | sediment t |
| | | | | ⊿ | | 5-1 | 7 " | ',, wet yellowish distinctly mot [,] | #6 s s stor | end of hor |
| | | | | | 9 | | | tled mostly white sludge | = g | |
| i | 5 | _ | | | | $\neg \uparrow$ | | tled mostly white sludge mixed with 10-20% black fly- ash, coarse silt to fine sand size, very loose, with nearly vertical brown fine to coarse | L EL | Added abou |
| | | -6- | 10 | | | | | i ash, coarse silt to fine sand | ia ES | gallons wa |
| | | | 1 () | 16 | | 26 | 10 | 'i', size, very loose, with nearly | ic Ed | to hollow |
| | | | | 1 1 (| | | | 'i'vertical brown fine to coarse | 10000 | o 5 augers whi |
| <u> </u> | | | | | 22 | | | (, 2 () | 8 | = |
| | | | | | | | | " grades downward to | 1 | stall the |
| | | | | | | | | Wet gray flyash and cinders, | | ificant sand plu |
| | | | | | | | | itvery fine to coarse sand size tone gravel size broken orange | 1 | ugers prevented |
| į | İ | | | | | | | i brick fragment, mixed with 5- | | attempts to inst |
| İ | | | | | | | | 1 115% white sludge, very loose | | at described si d ahead south 5. |
| | | - i | | | | _ | | 'clear transition to-6.0. | | and reaugered |
| } | | | | | | | | Wet gray flyash and cinders, | | out sampling to |
| Ì | | <u> </u> | | | | | | medium size sand to coarse | | feet and instal |
| 1 | | | | | | - | | igravel size, occasional gra- | well. | |
| ! | | İ | | | | | | vel size orange brick frag- | | - |
| 15! | | <u></u> | | | | | | ment, very loose | (1)Ce | ement-bentonite |
| Ĺ | - | | | | | | | 16clear transition to-7:0 | l | rout. |
| Ī | | Ī | | | | | | Extremely moist distinctly | | Bentonite pellet |
| Ī | | | | | | | | mottled grayish brown silty | ! | seal. |
| f | | \dashv | | | | | | clay (CLAYEY-SILT), stiff, | | |
| ŀ | | | | | \dashv | | | with few brown fine roots, | | |
| ! | 1 | | | | | i_ | | - <u>'(Cī)</u> | | |

12 "WITH 140 Ib. WT. FALLING 30

N = NUMBER OF BLOWS TO DRIVE



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| MONI | Τ | ΟF | RΙ | N | 3 |
|------|---|----|----|---|---|
| MIL | Т | Ŧ | | | |

0W-61-86 continued

| 01105 | | | |
|-------|-------|--|--|
| SURF. | ELEV. | | |

| | PROJEC | • |
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| 1 | E85q | |

102nd St. Landfill well install. LOCATION Approx. 35 ft. south of fenc

CLIEN's

Buffalo Avenue, Niagara Falls, NY

west of gate fence to drille

GEOTRANS/EPA and DOJ

DATE STARTED 2/10/86 COMPLETED 2/11/86

| NEBTU | BLOWS ON SAMPLER | | | | | DESCRIPTION & CLASSIFICATION | | | |
|----------|------------------|----------------|-------------|--------------|--|------------------------------|--------------|--|-----------------------|
| DEPTH | A S | <u>ه</u> (| ٤ 12 | 12 / / 16 | 1b/24 | Ñ | | DESCRIPTION & CLASSIFICATION | WATER TABLE & REMARKS |
| | | | | | | | | | |
| | - | | | <u> </u> | <u> </u> | | | | |
| | | | | <u> </u> | | | <u> </u> | Moist distinctly mottled brown | |
| | | | | | - | - | | (SILTY-CLAY), very stiff, thinly laminated with very | |
| | | | | | | 1 | | thin coarse silt lenses, (CL) | |
| | | | | | İ | İ | | 10.0 | |
| | | | | | | | | Boring completed at 10.0 feet. | |
| | | | | | | <u> </u> | | bolling completed at 10.0 leet. | |
| 5 | | | | | 1 | 1 | | | |
|) | | | | | <u> </u> | <u> </u> | | | |
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| | | | | | | | | | 00045 |
| | | | | | |] | | | |

| N = NUMBER OF BLOWS TO DRIVE | 2 " SPOOR1 | 2_" WITH140 lb. WI | i. Falling 30 " per blow. |
|------------------------------|------------|--------------------|-----------------------------|
|------------------------------|------------|--------------------|-----------------------------|



DIMENSIONS, IN: Painminary

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| , corremon T | | () |
|------------------|---|-------------|
| MONITORI WELL | MA-1 | SURF. ELEV. |
| 200 150 | 100m2 Charact Tandfill amily installation (OCATION): | _ |

PROJECT 102nd Street Landfill well installation LOCATION Near storm sewer outflow; adjacent 1E85b/c Buffalo Avenue, Niagara Falls, NY to Niagara River.

| CLIENT | <u>GEOIR</u> 2 | NS/EPA | and D | DATE STARTED 11/8 | 2/85 COMPLETED <u>11/8/85</u> |
|------------|---|----------------|---------------------------|---|--|
| DEPTH FEAT | BLC SA 0 6 12 | DWS ON AMPLER | REC | DESCRIPTION & CLASSIFICATION | WELL WATER TABLE & REMARKS |
| | 1 2 6 | 10 11 | 5 8" | Moist dark gray silt loam (CLAYEY- SILT) fill with less than 5% cin- der and slag fragments, very stiff noticed bricks in auger debris, (CL-ML) | to 1.5 feet over industrial waste |
| | 2 2 5 | 5 1 | 111" | Moist mixed gray and light gray | fill to 3.5 feet over industrial waste fill to 12. y alluvial sediment |
| 5 | 3 8 5 5 1 1 1 1 1 1 1 1 | 44 49 53 Ag | 8" 4" | Moist reddish brown silty clay (CLAYEY-SILT) fill with less than \5% cinder fragments, stiff, (CL)3.5 Moist gray flyash, very dense in | E 5.2 |
| | | 2 24 | - - - 7" - | \sandclear transition to - = 8.5 | Difficulty aug- ering between 0- 2.5 and 6.0-11.0 |
| 20 | 34 | 19 23 | 14" | Moist gray flyash, very dense, mostly coarse silt to fine sand size clear transition to ll.0 Extremely moist gray cinders, mostl | feet. Resampled 10 11.0-12.0 foot 10 depth because of 20 anticipated 21 alluvial |
| | 8 3 2/2 | | 7" | fine sand to medium gravel size, very dense in place, with few bro- ken red brick fragments clear transition to Wet black cinders, mostly fine sand to medium gravel size, com- | REC-Recovery. |
| 7-1 | | | | pact in place, with few broken red brick fragments clear transition to Extremely moist dark gray silt loam (CLAYEY-SILT), very soft, with nearly vertical fine root, with | Water table at 11.3 feet below surface at completion |
| | | | | partially decayed horizontally oriented organic fiber, brown 14.0 Boring completed at 14.0 feet. | Augered to 13.7 feet, 14 inch width, 8½ inch inside diameter. |

000458 N = NUMBER OF BLOWS TO DRIVE 2 "SPOON 12 "WITH 140 Ib. WT. FALLING 30 "PER BLOW.

ols LOGGED By Donald W. Owens/Soil Scientist

SHEET J OF J



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(eight

REPLACEMENT MONITORING WELL

NW-2

SURF. ELEV.

| PROJECT 1E85c | | | ill well installation LOCATION About 4 agara Falls, New York | feet e | ast of abandoned |
|---|------------------|-------------------|--|--|--|
| CLIENT | GEOTRANS/EP | 7 | • | 9/85 | COMPLETED <u>11/19/85</u> |
| DEPTH SAMPLE | BLOWS ON SAMPLER | N REX | DESCRIPTION & CLASSIFICATION | WEILL | WATER TABLE & REMARKS |
| feet 3 1 2 2 2 5 5 10 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 | 3 | 11 14" 68 12" 0 | Wet black industrial waste sludge, silt size with metal fragments, possibly outlining a drum, wood (maybe board) at base of layer, | Mentonite Slotted screen 2" ID black poellets Special sand blend | original soil surface to 10.5 feet over very fine sand and coarse silt Lake Tonawanda sediment to end of boring. Metal observed in sample 4 was gray in color, may be drum wal size in thick- ness. Noticed metal fragments in auger debris appears to be part of a 10-20 gallon containes (not 55 gallon) Difficult aug- ering 2.0 to 10.0 feet depth 12.8 Noticed black liquid oily sheen to sample 4 and 5. Sampl 2 had chemical |
| • | | | dense | (1) (2) | cdor. Bentonite pellet. Cement-bentonite grout. nued on sheet 1A. |



| PROJECT 10 | MW-2 continu | Test Borings and Logs East Aurora, New York 14052 • (716) 6 ed indfill well installation LOCATION About 4 Niagara Falls, New York | SURF. ELEV. |
|---------------|----------------------------------|---|--|
| • | OTRANS/EDA ar | DATE STARTED 11/1 | 9/85 COMPLETED 11/19/85 |
| DEPTH WWW O W | BLOWS ON SAMPLER 6 12 18 18 24 N | DESCRIPTION & CLASSIFICATION | WATER TABLE & REMARKS |
| | | Extremely moist black silt loam (CLAYEY-SILT) with very fine root, stiff, noticed decayed organic mat at surface (10.0 foot depth) 10.5 Wet distinctly mottled gravelly very fine sandy loam (SANDY-SILT), compact, noticed a few black areas (1 inch in diameter) 10.5-11.0 foot depths coated with liquid from above, weak prismatic soil structure with ped faces coated black, cld root channels black. 12.8 | May affect monitoring well sampling performance. |
| 10 | | Augered to 12.8 feet. | · |
| 1.5 | | | 000460 |

| N' = NUMBER OF BLOWS TO DRIVE | " SPOON . | " WITH <u>140</u> | Ib. WT. FALLING | 30 " PER BL | ЭW. |
|-------------------------------|-----------------|-----------------------|-----------------|---|-----|
| Lance on Popald W. Chape. | (Soil Scientist | | 3.5 | • | |



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| MONITORING |
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| e pries T |

WEILL MG-3

SURF. ELEV.

PROJECT 102nd Street Landfill well installation LOCATION Between ML-1 and Niagara River

1E85a Buffalo Avenue, Niagara Falls, NY

CLIENT GEOTRANS/EPA and DOI DATE STARTED 12/16/85 COMPLETED

| DEPTH HTGED | | BLOWS OF | | BLOWS ON SAMPLER | | | DT~ | DECEMBRICAL & CLASSIFICATION | 1.11 T | MAYED TABLE & BELLERY |
|-------------|----------|--|----------------------------------|--|--|----|-----|--|------------------------------|---|
| feet s | SAM | 76 | °/12 | 12/16 | 15/24 | N | REC | DESCRIPTION & CLASSIFICATION | WELL | WATER TABLE & REMARKS |
| | 1 | 8 | | | | | | The second of th | | Soil fill ar |
| | | | 9 | | | | | Extremely moist dark brown silt | | demolition |
| | | | | 11 | | 20 | 12" | <pre>loam (CLAYEY-SILT) fill with one reddish brown broken brick, very</pre> | ايد | debris to 8 |
| | | | Ī | | 14 | | | stiff, noticed fine roots, (ML) | grout | feet over so |
| | 2 | 133 | <u> </u> | İ | T- | | | 2.5 | g | fill to 8.5 |
| | - | 113 | 6 | <u> </u> | | | | # • J | cement-bentonite | feet over m |
| | _ | + | 5 | 8 | | 14 | 12" | | T _L | flyash with industrial: |
| | | Extremely moist dark brown mixed silt loam (CLAYEY-SILT) fill with cinders, slag, and broken | Extremely moist dark brown mixed | 널 | to 12.5 feet | | | | | |
| | _ | | 9 | over silty | | | | | | |
| Ε. | 3_ | | | <u> </u> | alluvial sec | | | | | |
| 5 | <u> </u> | ┼ | bricks, wood chips and gravel, | l g | ment to 13. | | | | | |
| | | + | | 4 | | | | 4.0 feet | tiff becoming firm below fee | |
| • | | 1 | <u> </u> | <u> </u> | 3 | | | 4.0 1661 | with | silty alluv |
| | 4 | 1 4 | ! | | 1 | | | | | sediment to 14.0 feet over water sorted |
| | | <u>!</u> | 3 | - | ! | 5 | 4" | ' | | |
| | <u> </u> | | | 2 | | | 7 | l o l an | and deposite | |
| | | | | | 3 | | | 8.0 | - | mostly fine sand with some silt to 20.2 |
| | 5 | 3 | | | | | | Extremely moist reddish brown | backf | |
| | | <u> </u> | 4 | | | 30 | 11" | silty clay loam (CLAYEY-SILT) | ည္မွ | |
| | | | | 6 | | 10 | 11 | • | | feet over wa |
| 10 | | | | | 4 | | | (ML-CL) 8.5 Extremely moist dark gray flyash | 1ed | sorted and de |
| | 6 | 17 | | | | | | coarse silt to sand size, mixed | 7 1 | posited most |
| | | - | 23 | | | | | with 5 to 15% gravel size slag, | Insta | sand and gra |
| | | | | 48 | | 71 | 18" | | trace silt t | |
| | | Ī | | | 32 | | | $-$ clear transition to $\frac{10.0}{10.0}$ | = | 21.0 feet ov soft loamy w |
| • | 7 | 18 | | | 1 | | | Extremely moist dark gray mostly | 3 | deposited to |
| | - / | | 1 | | | | , | flyash, silt and sand size, mixe | N 0 | end of bori |
| | - | | _ | 2 | } | 3 | 18" | with 5 to 15% gravel size slag, | 2. | |
| | | i i | - | | | | | (wood chips and one broken cera- mic tile, very dense 12.5 | | |
| | | | | | 4 | | | \ \mic tile, very dense \ \ \lambda 2.5 \ \ \text{Extremely moist dark gray silt} | - | |
| 15 | F. | 12 | | | | | | \ loam (CLAYEY-SILT), very soft | | |
| 10 | | | ↑↑* ↑/# ` | with mostly decayed organic fiber | | | | | | |
| | | 1 | | 6 | | | | oriented horizontally, nearly | | |
| | | <u> </u> | | | 7 | | | vertical numerous fine roots, | | |
| | ٥ | 2 | | | | | | (OL, _ML) grades downward to _13.0 | | 000403 |
| | | <u> </u> | 3 | ļ | | | 18" | See sheet 2. | | 000461 |
| | | | | 6 | | 9 | 70 | | | Continued on she |

| N = NUMBER OF BLOWS TO DRIVE | 2 | _" SPOON | 12 | ." WITH | 140 | lb. WT. | FALLING | 30 | " PER BLOW. |
|------------------------------|---|----------|----|---------|-----|---------|---------|----|-------------|
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MW-3 continued

| SURF. | FLEV | |
|-------|-------|------|
| SURF. | ELEV. | |

| PROJECT |
|----------------|
| 1E85a |

102nd Street Landfill well installation LOCATION Between MI-1 and Niagara River

Buffalo Avenue, Niagara Falls, MV

CLIENT

GEOTRANS/EPA and DOJ

DATE STARTED 12/16/85 COMPLETED

| | | BLOWS ON SAMPLER | | | | | | | |
|--------------|------|------------------|----|--|---|--------------|-----------|---|-----------------------------|
| DEPTH FEET S | SAMI | 7, | 6/ | _ | 110/ | N | REC | DESCRIPTION & CLASSIFICATION | WEILL WATER TABLE & REMARKS |
| | ٥ | | | | 2 | | | Extremely moist dark gray silt | |
| | 10 | 1 | | } | | | | loam (SANDY-SILT), very loose, | Cravals of mixed lithele |
| | | <u> </u> | 2 | | <u> </u> |] 5 | 15" | with partially decayed organic fiber oriented horizontally, (ML) | Gravels of mixed litholo |
| | _ | | | 3 | † | 1 2 | 13 | grades downward to -14.0 | Lifted 6½ inch augers |
| 20 | | | | | 1.2 | <u> </u> | | Extremely moist dark gray fine | after augering to 25.0 f |
| | 11 | 111 | | - | | - | | sandy loam (SILTY-SAND), compact, | and reinserted 8% inch |
| | | ! | 14 | 1.5 | |) 161 | 13" | weak thinly bedded, (SM) 20.2 | |
| | | <u> </u> | | 47 | | | | Wet gray gravelly loamy sand | through augers. |
| | | 1 | | <u> </u> | 18 | | | (SAND) with 20 to 40% mostly | |
| | 112 | 4 | | | 1 | | | <pre>subrounded gravel, mostly medium to coarse size sand, very dense</pre> | |
| | | _ | 2 | _ | | 4 | 16" | in place, loose when disturbed, | |
| | | 1 | | 12 | +- | - | | stratified, (SP) 21.0 | |
| | | - | | ! i | 1 2 | | 1 | Wet pinkish brown gravelly loam | |
| 2- | 13 | 3 | | | | | | \ (SANDY-SILT) with 15 to 40% | * |
| 25 | | | 2 | | <u> </u> | 4 | 12' | mostly subangular gravel, very | |
| | | | | 12 | | 1 | | dense in place, weak thinly bed- ded, (ML) 21.5 | |
| | | | | ├ | 4 | | | \ Wet pinkish brown gravelly loam | |
| | | | | ├ | | | | (SANDY-SILT) with 15 to 40% | |
| | | | | <u> </u> | ┼ | - | | mostly subangular dolamitic | • |
| | | 1 | | - | | | | \ gravel, soft, massive soil | |
| | | | | - | 1 | | | \structure, (ML) 26.0 | |
| | | | | | - | ļ | | Boring aborted at 26.0 feet. | |
| • | | | | | | | | Diling another at 20.0 feet. | |
| - | | | | ! | <u> </u> | | | | |
| 30 | | | | <u> </u> | } | | | | |
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| 35 | | | | 1 | 1 | | | | 0004 |

 $N = NUMBER OF BLOWS TO DRIVE <math>\frac{2}{N} = NUMBER OF BLOWS TO DRIVE \frac{2}{N} = NUMBER OF BLOWS TO DRIVE <math>\frac{2}{N} = NUMBER OF BLOWS TO DRIVE \frac{2}{N} = NUMBER OF BLOWS TO DRIVE <math>\frac{2}{N} = NUMBER OF BLOWS TO DRIVE \frac{2}{N} = NUMBER$



DIMENSIONS, INC

Test Borings and Logs

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| MONITORING MW-4 | | Surf. Elev. |
|---|--|--|
| PROJECT 102nd Street La | ndfill well installation LOCATION Replace v | well for P-7 |
| CLIENT GEOTRAMS/EDA an | d DOT DATE STARTED 12/1 | 7/85 COMPLETED 12/17/85 |
| DEPTH BLOWS ON SAMPLER DEPTH Feet 6 12 16 N N N N N N N N N | REC DESCRIPTION & CLASSIFICATION | WELL WATER TABLE & REMARKS |
| 1 8 | Extremely moist dark gray silt loam (CLAYEY-SILT) fill with many fine roots, very stiff 0.3 Extremely moist reddish brown silty clay loam (CLAYEY-SILT) fill with 5 to 15% gravel, very stiff 0.5 Moist dark gray flyash, coarse silt to fine sand size, very dense, platy structure, noticed concrete chunks 2 to 4 inches thick between 2.5 and 3.2 foot depth grades downward to - 4.0 Extremely moist dark gray flyash, coarse silt to fine sand size, noticed harder partially cemented cobble size, very loose grades downward to - 6.0 Wet black flyash, coarse silt to fine sand size, very loose, noticed medium sand size flyash between 10.9 and 11.0 feet 11.0 Extremely moist dark brown mucky silt loam (CLAYEY-SILT), high com- ponent of mostly decayed reddish brown organic material, firm, with few fine nearly vertical roots 12" Extremely moist dark brown silt loam (SANDY-SILT), very loose, partically decayed brown flat organic fiber oriented horizon- tally: (ML) Eoring completed at 14.0 feet. | feet over silt alluvial sediment to 12.0 feet over coarse silty alluvial sediment to end coarse silty alluvial sediment to end of boring. (1) Bentonite pellets. Noticed slight oily sheen to liquid in sample #3, very noticeable in sample #4 & 5. 10.5 etration with |
| | | 000483 |

N = NUMBER OF BLOWS TO DRIVE 2 "SPOON 12" WITH 140 Ib. WT. FALLING 30 " PER BLOW.



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INC. Palamanary

less steel screen.

Continued on sheet lA

| MONITORIN WELL | G <u>Mw-5</u> | | SUR | RF. ELEV. |
|----------------------------|--|--|---|---|
| PROJECT 1E85e CLIENT | | | wer. 30 | center line of 48" COMPLETED 12/20/85 |
| DEPTH STORY | BLOWS ON SAMPLER 6 12 15 17 N REX | DESCRIPTION & CLASSIFICATION | WEILL | WATER TABLE & REMARKS |
| 2 | 54 | gravel, compact, (ML) 1.5 Moist mixed dark gray silt loam (SANDY-SILT) and Brown silty clay loam (CLAYEY-SILT) with 5 to 15% gravel fill with orange broken brick fragment (CL-ML)2.0 Extremely moist readish brown (SILTY-CLAY) fill with 2 to 5% gravel and cinders, very stiff, (CL) 2.5 Extremely moist black mixed fly- ash, cinders with occasional broken brick, silt to gravel size | ID black steel viser Cement bentonite grou | fill to 10.0 feet over soil fill to 10.5 feet over demonstration debris to 11.0 feet over apparent water washed 7.8 (wave action) or layered debris to 12.0 feet over |
| 1.0 € | 9 10 15 10 | Extremely moist mixed black and reddish brown silty clay loam (CLAYEY-SILT) and silty clay (CLAYEY-SILT) fill, very stiff, | 2 tuch | apparent coars silty alluvial sediment to er of boring. Hard augering |
| 7 | 1 1 3 2 3 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | Extremely moist gray cobble with few wood fragments, loose when disturbed 10.0 Extremely moist black gravelly loam (SAND-SILT-CLAY) fill with 15 to 40% mostly subangular gravel, very stiff 10.5 Broken concrete and wood frag- | <i>U.</i> 0 | from surface to 12.0 feet. 13.0 Samples 4 & 5 observed from sampling jars. |
| | | ments, loose when disturbed 11.0 | (1) Be | augered to 14.5 feet. Entonite pellets. 5 super slotted stair |

N = NUMBER OF BLOWS TO DRIVE $\frac{2}{2}$ "SPOON $\frac{12}{12}$ "WITH $\frac{140}{140}$ Ib. WT. FALLING $\frac{30}{30}$ "PER BLOW.

See next sheet.



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MONITORING

| WELL |
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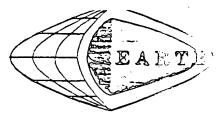
Mw-5 continued

| SURF FLEV | | | |
|-----------|------|------|--|
| | CHDE | FLEW | |

| PROJECT | 102nd Street Landfill well installation | LOCATION 4 feet west of center line of 48" |
|---------|---|--|
| | Buffalo Avenue, Niagara Falls, NY | Storm sewer, 30 feet inland from |
| CLIENT | GEOTRANS/EPA and DOJ | DATE STARTED TAD 12/20/85 COMPLETED 12/20/85 |

| | i w | | BL | OWS | ON | | Ī | | | | |
|----------------------|--------------|---------------|----------|--------------|--|--|--|------------------------------|------------------|-----------|--|
| рертн feet | ₹ Ç | | | AMP | | 1 | - | DESCRIPTION & | L CLASSIFICATION | | WATER TABLE & REMARKS |
| feet | S. | 16 | /12 | | 24 | ^ | | | | | |
| | | 1 | | <u> </u> | | - | 1 | | | | |
| | <u></u> | ╀- | | - | ╀ | <u> · </u> | | Wet dark bro mostly mediu | wn mucky (S | SAND), | Noticed slight oily |
| | | 1 | - | ! | | - | - | compact in p | lace. loose | when dis- | appearance to lower part of sample 6 significant |
| | - | - | | 1 | - | - | 1 | turbed, most | ly fine size | e mostly | oily appearance to sample |
| | <u> </u> | | <u> </u> | - | <u> </u> | - | | and partiall | y decomposed | d organic | 7. Noticed tile in auger |
| | - | \vdash | | | ┼─ | - | 1 | fiber consis twigs, parti | | | debris between 10.0 and |
| | | | - | 1 | $\dot{\dagger}$ | - | 1 | fragments (a | | | 12.0 f∞t depth. |
| | | | İ | İ | T | İ | 1 | layered debr | is), (OL) | 12.0 | |
| 5 | | $\overline{}$ | | | | | 1 | | downward to | | |
| | | | | | | | | Wet dark gra | | | |
| | | | | | | | | size gravel, | | | |
| | | 1 | | <u> </u> | | |) ; | comic fiber, | very loose, | (OL) 14.0 | |
| | | <u> </u> | | <u> </u> | ╀— | <u> </u> | , , | Boring cample | 2+25 2+ 14 (|) foot | |
| | 1 | 1 | | - | | - | <i>i</i> | / LANGE COMPT | sted at 14.0 | reet. | · |
| | _ | | | - | - | - | 1 / | | | | |
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| | | <u> </u> | | <u> </u> | <u></u> | | | | | | 000465 |

N = NUMBER OF BLOWS TO DRIVE 2 "SPOON 12 "WITH 140 Ib. WT. FALLING 30 "PER BLOW.



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| MOR | ĬŢ. | T | O E | RΙ | N | G |
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| WELL | <u> </u> |
|------|----------|
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SURF. ELEV. _

PROJECT 102nd St. Landfill well install. Buffalo Avenue, Niagara Falls, NY)E85e

LOCATION 32 feet east of centerline of sewer line 8 ft. from rig

COMPLETED 1/8/86 GEOTRANS/EPA and DOJ DATE STARTED CLIENT

| | BLOWS ON' SAMPLER | | | | | | | | 1.7.7 | | | |
|---------------------------------------|-------------------|---------------|-------------|---------|--|---------------------|----------------|---|----------|--------|----------------------------|--|
| D ₹PTH feet | SAMP | <u>ل</u> 6 | £ 12 | 12/ | | REC | | DESCRIPTION & CLASSIFICATION | 64. | ELL | WATER TABLE & REMARKS | |
| · · · · · · · · · · · · · · · · · · · |] | 9 | | | | | | Prozen mixed mostly dark | | | Mostly soil | |
| | | | 8 | | <u></u> | 9 2" | | brown silt loam (SANDY-SILT | } | a | fill to 6.9 | |
| | | | | 11 | | | | fill with 10 to 20% reddish | | انا | feet over co | |
| | | | | | 10 | \neg | | brown silty clay loam (ClayE | - | oni | crete and | |
| | 2 | 3 | | | | 7 | | SILT) fill with 5 to 15% | | ا بدا | broken red | |
| | | | 8 | | | | | gravel, compact and very | | pen | brick fragm | |
| | | | _ | 10 | — <u> </u> | 3 4" | ١. | stiff, few fine brown roots, | a | | to 9.0 feet | |
| | | | | 10 | 12 | | ` | (ML and CL) grades downward to 3.0 | | ro | over soil for to 10.3 feet | |
| | - | | | | 12 | | | Moist faintly mottled dark | d | بدها | over sand f | |
| | | 11 | | | | _ | ŀ | brown silty clay loam | - | الم تا | (nossihiv s | |
| 5 | İ | | 8 | | 1 | 5 []] 28 " | 1 | (CLAYEY-SILT)fill with 5 to | 9 | en | bedding) to | |
| | | | | 7 | | | 1 | , 15% gravel, very stiff (ML- | يد | E | 10.5 feet o | |
| | <u> </u> | | | | 8 | | 1. | \cr\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | | Ceme | 6.0 broken red | |
| | 3 | 8 | | | | | \ | Creat fraugition to | Ü | | brick to 11 | |
| | | | 50 | /5 | | 7 | \ | Moist reddish brown silty clay loam (CLAYEY-SILT) fill | la | 1 | feet over s | |
| | | 56 | ا | <u></u> | | 3' | \ \ \ | with 5 to 15% gravel, very | 19 | 11) | alluvial se | |
| | | | | | | 7 | 1 | intiff (MI_CI) | | | 8.0 ments to en | |
| | | | | | | - | \mathbb{N} | $\frac{1}{2}$ - clear transition to $\frac{5.5}{2}$ | T | | boring. | |
| | | | | | | - | | Moist mixed mostly dark brown | 5 | | | |
| | | | | | | _ | 1 | silt loam (SANDY-SILT) and | | 0 | Augered wit | |
| | 5 | 0 0 | | | | _ | 1 | (CLAYEY-SILT) with 10 to 20% | 1 | 2 | 14 inch aug | |
| 2.0 | | | 20 | | | | $ \cdot $ | reddish brown silty clay loan | | I e | 10.0 8½ inch I | |
| A NEW YORK | | | | 19 | 3 | 21 ' | \prod | | | o y | from 7.5 to | |
| | | | | | 12 | | 1 | (CLAYEY-SILT) in layers, compact and very stiff with 5 to | 2 | al | 9.0 foot de | |
| | 5 | E, | | | | 7 | $M \setminus$ | 15% cinders and possibly some | | 00 | No minus? | |
| | | | 3 | | | 7 | M | \\flyash, (ML-CL) 6.9 | | 0 = | No visual e | |
| | | | | | | | M | Concrete and broken red | | Spl | | |
| Martin To a programme | | | | ¦ | | | | brick fragments 9.0 | _ | | | |
| | | | - ! | | | | <i> </i> 1 | Moist gray gravelly loam | () | 1) | 13.0 | |
| | | | | | | _ | - | (SANDY-SILT) fill with 15 to | | | | |
| | | | | ! | | _ | 1 | 40% gravel, dense, (ML) 10.3 | | REC. | -Recovery | |
| | | | | | | | 1 | Moist gray (SAND) fill, dens | | | | |
| 15 | | | 1 | | - | 7 | | in place, loose when dis- | | (1) | Bentonite pell | |
| W.L. | | | i | i | | | | turbed, medium to coarse size | Ê | | seal. | |
| | | - | · · · · · · | | | \dashv | | sand, (SW-SP) 10.5 | | | | |
| | | - 1 | | | | \dashv | | Red broken brick 11.0 | _ | (2) | Super #6 slotte | |
| | | | | | | _ | | • | | | stainless stee. | |
| | | | | | | | | | | | screen. | |
| | | ĺ | - 1 | Ī | | Į. | | See sheet lA. | | on+ | inued on sheet : | |

2 & 3 " SPOON 12 " WITH 140 Ib. WT. FALLING N = NUMBER OF BLOWS TO DRIVE Dale M. Gramza/Geologist

ols LOGGED BY Donald W. Owens/Soil Scientist

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DIMENSIONS, INC. Preliminary

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| WELL | <u> M₩-6 c</u> | <u>on</u> tinu | eđ |
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|------|----------------|----------------|----|

SURF. ELEV.

PROJECT 102nd St. Landfill well install. LOCATION 3½ ft. east of center line of 1E85e Buffalo Avenue, Niagara Falls, NY sewer line 8 ft. from rip rate

CHIENT GEOTRANS/EPA and DOJ DATE STARTED 1/7/86 COMPLETED 1/8/86

| | 2 . | | BI | LOWS AMPI | | | DECCRIPATION A CLASSICATION | |
|--------------|--------------|--|--|--------------|-------|---|--|--|
| DEPTH | A N | 0/6 | 6/1: | 12/ 2/18 | 10/24 | N | DESCRIPTION & CLASSIFICATION | WATER TABLE & REMARKS |
| | | - | | | | | Extremely moist blac | k silt |
| | - | - | - | +- | 1 | | loam (CLAYEY-SILT), | |
| | | + | - | | | | with very few brown | nearly |
| | | <u> </u> | | | | i | <pre>vertical medium to f roots, (OL-ML)</pre> | ine size |
| | | İ | | Ī | Ì | | TOOLS, (OE-ME) | 13.0 |
| | | | | | | | $\sqrt{\text{Sampled to 12.0 feet}}$ | , augered |
| | | | | | | | \int to 13.0 feet. | Split spoon samples |
| _ | | | <u> </u> | <u> </u> | ! | | | 1-4 obtained with 2 |
| 5 | ! | <u> </u> | 1 | | | | | OD - 2 foot long |
| | | | 1 | - | | | | sampler, sample 5 w: 3* OD - 3 foot long |
| | | | | | | | | sampler. |
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| Augered through crushed gravel fill. Augered through crushed gravel fill. Augered through crushed gravel fill. Augered through crushed gravel fill. Augered through crushed gravel fill about 4.0 feet over mostly signification fill, stiff, few fine brown fill, stiff, few fine brown fill, stiff, few fine brown roots, (ML) 5 5 12 12 5 12 5 12 5 12 12 | MONITORI WELL | | MW. | -7 | | | | | SU | RF. ELEV. |
|--|------------------|---------------|-------------|------------|--------------|----------|------------|---|---------|--|
| Set Casing 1/17/86 | | 1 <u>E</u> | 02n | d S alo | tre Av | et en | Lan Je, | dfill well installLOCATION 4 ft. n Niagara Falls, NY ft. wes | orth of | of edge of pad, |
| Set Casing 1/17/86 Samples Samples Set Casing 1/17/86 Samples Samples Set Casing 1/17/86 Samples Samples Samples Set Casing 1/17/86 Samples Samples Set Casing 1/17/86 Samples | CLIENT | G | EOT | RAN | S/E | PA | and | DOJ DATE STARTED 1/1 | 3/86 | COMPLETED |
| REC DESCRIPTION & CLASSIFICATION WELL WATER TABLE & REMARK Recently place crushed fill. Augered through crushed gravel fill. Augered through crushed gravel fill. Recently place crushed fill about 4.0 feet over mostly sill to 9.0 foo ver hard fill. Extremely moist dark brown fill, stiff, few fine brown roots, (ML) Extremely moist dark brown fill about 4.0 feet over mostly sill to 9.0 foo ver hard fill. Extremely moist dark brown mixed silt loam (CLAYEY-SILT) fill with cinders, slag, broken brick fragments, very stiff years of the fill with 5 to 15% gravel, slag and cinder fragments, slag and cinder fr | 02.2 | | حجيدي | | | | | | | |
| Augered through crushed gravel fill. Augered through crushed gravel fill. Extremely moist dark brown fill, stiff, few fine brown roots, (ML) Extremely moist dark brown fill, stiff, few fine brown roots, (ML) Extremely moist dark brown mixed silt loam (CLAYEY-SILT) to 14.0 feet coarse silty alluvial sedit to 12.1 lill with cinders, slag, broken brick fragments, very stiff 7.0 Extremely moist reddish brown silty clay loam (CLAYEY-SILT) fill with 5 to 15% gravel, slag and cinder fragments, stiff, (ML-CL) Solution of the coarse silty water sorted deposited most silty clay loam (CLAYEY-SILT) fill with 5 to 15% gravel, slag and cinder fragments, stiff, (ML-CL) Solution of the coarse silty very dense debris (No sampling below 9.2 feet) Extremely moist dark gray silt loam (CLAYEY-SILT) fill, firm, with brown nearly vertical fine root fiber, noticed rubber pieces 14.0 Extremely moist dark gray silt loam (SANDY-SILT), compact, with partially decayed crganic fibers oriented horizontally, (ML) grades downward to - 16.0 foot long spoon, silt loam (SANDY-SILT), compact, with partially decayed crganic fibers oriented horizontally, (ML) grades downward to - 16.0 foot long spoon, silt loam (SANDY-SILT), compact, with partially decayed crganic fibers oriented horizontally, (ML) grades downward to - 16.0 foot long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of lo | | | 8 | LOWS | ON | | | | | |
| Augered through crushed gravel fill. Augered through crushed gravel fill. Extremely moist dark brown fill, stiff, few fine brown roots, (ML) Extremely moist dark brown fill, stiff, few fine brown roots, (ML) Extremely moist dark brown mixed silt loam (CLAYEY-SILT) to 14.0 feet coarse silty alluvial sedit to 12.1 lill with cinders, slag, broken brick fragments, very stiff 7.0 Extremely moist reddish brown silty clay loam (CLAYEY-SILT) fill with 5 to 15% gravel, slag and cinder fragments, stiff, (ML-CL) Solution of the coarse silty water sorted deposited most silty clay loam (CLAYEY-SILT) fill with 5 to 15% gravel, slag and cinder fragments, stiff, (ML-CL) Solution of the coarse silty very dense debris (No sampling below 9.2 feet) Extremely moist dark gray silt loam (CLAYEY-SILT) fill, firm, with brown nearly vertical fine root fiber, noticed rubber pieces 14.0 Extremely moist dark gray silt loam (SANDY-SILT), compact, with partially decayed crganic fibers oriented horizontally, (ML) grades downward to - 16.0 foot long spoon, silt loam (SANDY-SILT), compact, with partially decayed crganic fibers oriented horizontally, (ML) grades downward to - 16.0 foot long spoon, silt loam (SANDY-SILT), compact, with partially decayed crganic fibers oriented horizontally, (ML) grades downward to - 16.0 foot long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of long spoon, silt loam (CLAYEY-SILT) fill of lo | DEPTH WE | Š | 6/ | SAMP | LER 16/ | N | REC | DESCRIPTION & CLASSIFICATION | WELL | WATER TABLE & REMARKS |
| | 10 | | 5 5 | 13 | 13 | 11: | 3" | Extremely moist dark brown fill, stiff, few fine brown roots, (ML) Extremely moist dark brown mixed silt loam (CLAYEY-SILT fill with cinders, slag, broken brick fragments, very stiff Extremely moist reddish brow silty clay loam (CLAYEY-SILT fill with 5 to 15% gravel, slag and cinder fragments, stiff, (ML-CL) grades downward to - 'Very dense debris (No sampling below 9.2 feet) Extremely moist dark gray silt loam (CLAYEY-SILT) fill firm, with brown nearly vertical fine root fiber, noticed rubber pieces 14.0 Extremely moist dark gray silt loam (SANDY-SILT), compact, with partially decayed crganic fibers oriented horizontally, (ML) grades downward to - 'Extremely moist dark gray Extremely moist dark gray | | alluvial sedim to 16.0 feet of water sorted a deposited most fine size sand with some silt 22.0 feet over water sorted a deposited most sand and grave trace silt to feet over loam glacial till trefusal. 1 and 3-5 spli spoon samples obtained with |
| | | | | ∫€ | · | | | | | 000468 |



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|--|---------------|------------|------------|---|------|--------|---------------|---|--------------|--------------------------------------|
| WEL | | _Mi | <u>0-7</u> | <u> </u> | ent | in | ueđ | | . SL | JRF. ELEV. |
| PROJE | CT | 10: Bu: | 2nd | St | L. | Lar | ndfi ue, | | | of edge of pad, 8 MW3 offset. |
| CLIENT | | | | | | | | DOT DATE STARTED 1/13 | /86 | COMPLETED |
| CEIEINI | - | التتدا | | HIV. | 3/10 | | EUU | | | |
| | | 1 | Bil | OWS 1 | OF: | | 1 | Set. | rasin | <u>c 1/17/86</u> |
| DEPTH feet | SAMPLE NO. | 6/2 | 6/ | AMPLI | ER | К | REC | DESCRIPTION & CLASSIFICATION | WELL | WATER TABLE & REMARKS |
| <u>feet</u> | - | 6 | 12 | 18 | 6 | | ! | | | |
| | <u>5</u> 5 | 5 | - | | 0 | - | | | | Augered with 14 |
| | | _ | 5 | | | | | | | inch (6½" inside |
| | ϵ | 1 | - | | | | | Extremely moist dark gray | | diameter) augers. |
| | | <u> </u> | _ | | | | 9" | fine sandy loam (SILTY- | | |
| 20 | | | -2 | <u>የ</u> | | 3 | <u>1</u> 1 | SAND), compact, thinly | | Samples 6 and 9 bbtained with 2 |
| | | - | <u>-</u> | | 2 | | | b edde d (SM) | | inch OD-2 foot |
| | _ | 7 2 | | | _ | | | | | long split spoon |
| | _/_ | 20 | 3 | | | | İ | 22.0 | | sampler, samples |
| | | | ,, | 3 | | 6 | | Wet gravelly loamy sand | | 8 and 10-12 |
| ende er en andre de transce | | | | | 6 | | | (SAND) with 20 to 40% mostly | | secured with 3 in: DD-3 foot long |
| | 7 | 6 | | | | | 17" | \ nubrowneed gravel, mostly | | split spoon sam- |
| | | | 6 | | | | | medium to coarse size sand, | | pler. |
| | ٤ | ۵ | | | | | | loose, suratified, (SW-SP) 22.5 | i | |
| 25 | | _ | 4 | | | | | Wet pin ish brown gravelly | - | |
| The second secon | | | | 4 | | .ع. | | loam (SANDY-SILT) with 15 to | | |
| | | | | | 5 | | | 40% mostly subangular gray | | |
| | 8 | 6 | | | | | 24" | dolomitic gravel, loose, massive soil structure, (ML) | | |
| | | | 6 | | | | | massive roll structure, (ML) | | |
| | O | 3 | | | | | | | | , |
| | | | 5 | | | | | | | |
| | | | | 5 | 7 | 10 | 18" | | | |
| | | | | | 8 | | | | | İ |
| | 10 | 4 | | | | | | | | |
| <u></u> | | i | 7 | | | | 19" | | | |
| | - | | | 10 | | 1/ | 19 | 31.0 | | |
| | | | | | 10 | | | <pre></pre> | | |
| | 7.0 | 20 | | | | | | velly loam (SANDY-SILT) with | | |
| | | | 29 | | |] | | 15 to 40% mostly subangular | | |
| | 11 | 18 | | | | | | gray dolomitic gravel, some | | |
| | | | 23 | | | | 13" | fine to coarse size sand, | | |
| | | 25 48 | 10 | <pre>very dense, massive soil structure, (ML)</pre> | | 000469 | | | | |
| | | | | | 36 | | | Seructors / (Mb) | | |
| | 12 | 20 | | | | | 26" | | | Continued on sheet 3. |
| 35 | | | 58 | | | | | | <u> </u> | PHEEL 3. |
| | | | | | | | | | | |



Test Borings and Logs

. East Aurora, New York 14052 • (716) 655-1717

MONITORING

| WELL |
|------|
|------|

MW-7continued

| SURF. | ELEV. | | |
|-------|-------|--|--|
| SURF. | ELEV. | | |

PROJECT 102nd St. Landfill well install.

LOCATION 4 ft. north of edge of pad, & ft. west of MW3 offset.

1E85g Buffalo Avenue, Niagara Falls

| | CLIENT | - | GEC | TR | ZAN | S/E | PA | bns | DOJ DATE STARTED 1/1 Set | | COMPLETED |
|--------------|---------------|-------------|-----|-----|----------------|--|------------------|---------------|---|------|---------------------------------------|
| | DEP TH | MPLE NO. | 0 / | S | OWS AMPL | ER | 1 | REC | DESCRIPTION & CLASSIFICATION | WELL | WATER TABLE & REMARKS |
| | eet | \$ | 6 | /12 | /16 | 24 | N | | | ļ | |
| | İ | 12 | | | 55 | | | | | | |
| | | | | | - | 83 | ۹ | } | | | Sample 12 obtained with 3" OD, 3 foot |
| | | | 100 | 1/3 | 111 | <u> </u> | 1 | - | Extremely moist brown gravelly loam (SANDY-SILT) | | long split spoon |
| | | | | | \vdash | <u> </u> | | 1 | with 15 to 40% mostly sub- | | sampler, samples |
| | | 13 | 24 | 25 | <u>!</u> :İ | <u> </u> | | 17" | angular gray dolomitic grave | 1, | 13 & 14 with 2" OI 2 foot long sample |
| | i | | | | 31 | <u> </u> | 56 | - 1 | some fine to coarse size | | 2 100t Tong Sample |
| | Ì | | | | | 37 | _ | | <pre>sand, very dense, massive soil structure, (ML)</pre> | | |
| | Ì | 14 | 13 | | | | | | | | |
| | 40 | | | 20 | | | 53 | 24" | | | |
| | | | | | 33 | ! | | 1 | $$ grades downward to $-\frac{40.5}{2}$ | | |
| 5 | | | | | <u> </u> | 50 | <u>" جُدٍ لا</u> | | • | 1 | 43. 5 |
| | | 15 | | | 1 | <u> </u> | | <u> </u> | 41.5 | | 41.5 |
| | | | | | | <u> </u> | | 1 | | Set | casing at 41.5 |
| -01/00 TOTAL | : | | | | <u> </u> | 1 | <u> </u> | ! } | | | t depth. |
| | | | | | | <u> </u> | | } | | | |
| | ŀ | | | | 1 | - | - | | · | | |
| | | | | | | | | | | | |
| | 45 | | | | | | 1 | | | | |
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| | | | | | <u> </u> | <u> </u> | - | | | | |
| | - | | | | | | | | | | |
| | 50 | | | | ! | | | | | | |
| | 100 | | | | | <u> </u> | | | , | | |
| | | - | | | 1 | | _ | | | | |
| | Ì | | | | 1 | <u> </u> | - | | | | |
| | Ì | | | | | | | | | | 0.004.20 |
| | 1 | | | | | | | | | | 000470 |

N = NUMBER OF BLOWS TO DRIVE 2 "SPOON 12 "WITH 140 Ib. WT. FALLING 30 "PER BLOW.



Test Borings and Logs
East Aurora, New York 14052 • (716) 655-1717

MONITORING

WELL <u>MW-7 continued</u>

PROJECT 102nd St. Landfill well install. 1E85g Buffalo Avenue, Niagara Falls

LOCATION 4 ft. north of edge of pad, 8 ft. west of MW3 offset.

CLIENT GEOTRANS/EPA and DOJ

| | 2 | 1 | | OWS AMPL | | | REC | | WELL | | | |
|---|---------|--|----------|--------------|--------------|--|----------|--|------------|------------------------------------|--|--|
| DEPTH | SAMI | 6/6 | 6/12 | 12 / / 18 | 16/24 | N | REC | DESCRIPTION & CLASSIFICATION | MEDE | WATER TABLE & REMARKS | | |
| | 12 | 1 | | 55 | | 11: | | | | | | |
| | <u></u> | <u> </u> | <u> </u> | | 83 | _ | | | , | Sample 12 obtainguith 3" OD, 3 for | | |
| | - | 10 | 4/3 | 31" | \vdash | - | | Extremely moist brown | ţ | long split spoon | | |
| | - | | | 1 | <u> </u> | | | <pre>gravelly loam (SANDY-SILT) with 15 to 40% mostly sub-</pre> | <u> </u> | sampler, samples | | |
| | 13 | 24 | 25 | - | <u>!</u> | | 17" | angular gray dolomitic grave | 1 , | 13 & 14 with 2" | | |
| | | ╁ | | 31 | - | 56 | 1 / | some fine to coarse size | | 2 foot long samp | | |
| | - | | - | T | 3.7 | | | sand, very dense, massive | | | | |
| | 14 | 13 | | | | | | soil structure, (ML) | | Coring Data | | |
| 40 | _ | | 120 | T | | 53 | 24" | | | | | |
| Carried Contract and Contract | | | | 33 | | 23 | | $$ grades downward to $-\frac{40.5}{}$ | | | | |
| | | | | | 50 | H ب إ (| | Advanced hollopw stem augers | | RUX Depth Recovery R | | |
| | 15 | <u> </u> | | | | | | to 41.5 foot depth 21.5 | | 39.7- | | |
| | 1 | <u> </u> | <u> </u> | | | | | clear transition to | | 1 | | |
| | | <u> </u> | <u> </u> | <u> </u> | <u> </u> | | | Dolomite, gray, fine grained | | 1 44.7 100% 3 | | |
| | \perp | | | <u> </u> | <u> </u> | | \ | hard, thinly bedded, slightly vuggy to 42.5 feet with cal- | | 44.7- | | |
| | | <u> </u> | | | <u> </u> | | \ | carious partings spaced 1 to | | 2 54.7 98% 5 | | |
| | RU | N : | 1 | - | <u> </u> | | \ | 3°, moderate to severely | | | | |
| _ | + | | ! | | <u> </u> | | | weathered along partings | | 150.2 120614 | | |
| 45 | * | | | 1 | | | | with some selenite present clear transition to 42.8 | | *With grout | | |
| | - | | | | | | \ | Dolomite, gray to brownish | | Grout recovery | | |
| | | | | | | | ١ | gray, medium grained, hard, | O | feet. | | |
| | | | | | | | ١ | thinly bedded, some shale in | ho.le | | | |
| | RU | , | _ | | | | 1 | partings spaced 2 to 7° with | ř | | | |
| | RU | \ <u>`</u> | 7 | | | | (| some moderate to severe weathering along partings, | re | | | |
| | | | | | | — | 1 | , noticed cross bedding be- | core | | | |
| | | | | | | _ | | tween 44.2 and 44.4 feet, | * | | | |
| | | | | | | \neg | | trace selenite in partings | ၁၀ | | | |
| 50 | | T | | | | \neg | | below 44.6 feet - clear transition - 45.0 | bedroc | | | |
| | | | | | | | | Clear transition - 2000 | pe | | | |
| | | | | | | \neg | | | Ξ | | | |
| Ì | | | | | | | | See next sheet. | open | | | |
| İ | | | | | | | | | | 000471 | | |
| İ | | İ | | | | | | | × | 000471 | | |

N = NUMBER OF BLOWS TO DRIVE 2 "SPOON 12 "WITH 140 Ib. WT. FALLING 30 "PER BLOW.



Test Borings and Logs
East Aurora, New York 14052 • (716) 655-1717

MONITORING

| WELL . | <u>MW-7</u> | <u>con</u> tinued | |
|--------|-------------|-------------------|--|
|--------|-------------|-------------------|--|

SURF. ELEV.

PROJECT 102nd St. Landfill well install.

1E85g Buffalo Avenue. Niagara Falls. NY

LOCATION 4 ft. north of edge of pad, {
ft. west of MW-3 offset

CLIENT GEOTRANS/EPA and DOJ

DATE STARTED 4/16/86 COMPLETED 4/16/86

| | DEPTH SAMPLER BLOWS ON SAMPLER 0 6 12 18 24 N | | | 1 | CONTROL OF STREET | METT | WATER TABLE & DEMARK | | | | | |
|--------------|---|-----|-----------|----------|-------------------|--|--|--|----------|---|----------|-----------------------|
| £ | DEPTH | SAM | | ξ | 6/12 | 112/ | 16/2 | N | ٦ | DESCRIPTION & CLASSIFICATION | WELL | WATER TABLE & REMARKS |
| | <u>ee:</u> | | 1 | | | | Ĺ | İ | | Dolomite, light brownish gray, | ၂၁၀ | |
| | | | _ | _ | | 1_ | | | ŀ | fine grained, hard, thin to | H | |
| | | | | | | | | | | nedium bedding, some shale in | bed | |
| | | | | 1 | | <u> </u> | | 1. | ╛ | partings spaced 2 to 10", | l o | |
| | 55 | | 1 | | | | | | | noticed carbonaceous shale | 0.0 | |
| | | | Ť | | | T | T | Τ | ٦ | partings below 48.3 feet, notice stromatolites in partings at | a do | |
| | | П | Ť | 寸 | | | T | i | ٦ | 48.7 feet, with moderate | × | |
| | | V | ÷ | | | 1 | Ť | $\dot{\top}$ | ٦ | I weathering along partings, no- | ž | 56.2 |
| | | | i | i | _ | | $\dot{1}$ | \dagger | ٦ | 1 ticed selenite seam 1/8" thick | | |
| | | - | + | + | | | ┼ | +- | - | 1 lat 46.8 feet | | |
| | | - | + | - | | | † | - | ۱ | $\frac{1}{1}$ - clear transition to - $\frac{48.7}{1}$ | | |
| • | | | + | + | _ | 1 | +- | +- | ┥ | Dolomite, gray, fine grained, | | |
|) | | | + | + | | - | | + | 4 | hard, thinly bedded, shale part- | | |
| | | | + | 4 | | - | +- | +- | 4 | ings spaced 2 to 9", noticed | | |
| | | | 1 | _ | _ | <u> </u> | <u> </u> | + | 4 | Iselenite in partings and vugs | | |
| . 177-44-4-4 | -60 | | <u> </u> | _ | | | <u> </u> | <u> </u> | ↲ | below 50.8 foot depth, moder- ately weathered along partings | | .' |
| | į | : | | 1 | | | <u> </u> | <u> </u> | ╛ | grades downward to 51.2 | | |
| | | | | | | | | | | Dolomite, brownish gray, fine | | |
| | | | | Ì | | | | | | grained, hard, very thin to | | |
| | | | | | | | | | | thinly bedded, shale partings | | |
| | | | T | | | | | T | 7 | spaced 1 to 11", moderately | | |
| | <u>-</u> | | \dagger | 寸 | _ | | | \dagger | ٦ | weathered in partings, noticed | | |
| | | | ┿ | \dashv | | - | - | ╁╴ | \dashv | selenite in partings from 51.5 | | |
| | | | \pm | + | | <u> </u> | ! | | \dashv | to 52.0 feet, shale partings | | |
| | | | + | + | | | | ╁ | - | become carbonaceous below 53.5 | | |
| | | | <u> </u> | 4 | | <u> </u> | <u> </u> | <u> </u> | ۱. | feet, abundant shale lamination | s | |
| | 65 | | <u> </u> | _! | | ! | <u> </u> | ! | 4 | spaced 1/8 to 3", noticed some | | |
| | | | L | | | | <u> </u> | <u> </u> | | curved bedding between 55.3 and | 3 | |
| | | | | | | | | | | 55.5 feet, noticed small vug | | |
| | Ĺ | | | | | | | | | with pyrite at 53.9 foot depth | | |
| | ſ | | Ī | | | | | 1 | | 56.2 | • | |
| | | - | - | 1 | | | | | | Coring completed at 56.2 feet. | | |
| | | | | T | | | | | | colling completed at 50.2 feet. | | |
| | - | | 1 | + | _ | | | | 1 | | | , |
| | } | | - | + | | | | ╁ | - | | | |
| J | - | | + | + | | | - | - | \dashv | | | • |
| | • | | 1 | 1 | - 1 | | i | 1 | 1 | | | 000472 |

N' = NUMBER OF BLOWS TO DRIVE __ - - " SPOON _- - " WITH _ - - Ib. WT. FALLING _ -- " PER BLOW.

ידי די די בייטו הדיילים או יעילע אם עבטטטטויי.

Pralininary



GEOTRANS/EPA and DOJ

DIMENSIONS, INC.

Test Borings and Logs East Aurora, New York 14052 • (716) 655-1717

| MONITORIN | V |
|-----------|---|
|-----------|---|

WELL MW-0

SURF. ELEV. Approx. 2/3rds distance south

PROJECT

102nd St. Landfill well install.

LOCATION of NE corner of landfill sout

1E85g

towards river 15 ft west of

CLIENT

Buffalo Avenue, Niagara Falls, NY

DATE STARTED 1/22/86 COMPLETED

| DPRT1 | PLE . | BLOWS ON SAMPLER | | | REC | DESCRIPTION & CLASSIFICATION | WELL WAT | | MIATE | ER TABLE & REMARKS | | |
|----------------------|-------|---------------------|--------|-----------|--|--|----------|--|--------|--------------------|------|--------------------------|
| DEPTH feet | SAM | U/6 | É 12 | 12/ 18 | 10/24 | N | REC | DESCRIPTION & CLASSIFICATION | WE | بابلت | WATE | K TABLE & REMARKS |
| | - | ٥ | | | | | | Moist brown silt loam (CLAY- | | | | Soil fill to |
| | | | 15 | | | 4.7 |] | EY-SILT) fill with 5 to 15% | |] | | 0.5 feet ove |
| | | | | B2 | | 4/ | 18" | \ subangular gravel, compact, | | ٠, | | flyash and |
| | | | | | 23 | I | | (ML) 0.5 | | rout | | cinders to |
| | 1 | 31 | | | 1 | | | Moist dark gray flyash and cinders, coarse silt to | | gre | | 8.5 feet ove |
| | 1 | 131 | 19 | ! | <u> </u> | _ | İ | gravel size with gravel size | | 1 | | silty allu- |
| | _ | 1 | 1 | | | | | slag and concrete fragments. | ပ | -bentonite | | vial sedimer |
| | 2 | - | 4 | | <u>!</u> | | ! | wood fragments, dense | pipe | n; | | to 9.5 feet |
| | | - | 4 | | | 6 | 1" | grades downward to-3:0- | 1 | to | | over coarse silty allu- |
| | | - | | 3 | | | | Wet dark gray to black fly- | e1 | en | | vial sedimer |
| 5 | | | | | 1 | | | ash and cinders, coarse silt | tee | م | | to 10.5 feet |
| | 3 | 1 | * ** * | | <u> </u> | | | to gravel size, noticed | S | بدا | | over water |
| | | ! | WH | | | | ٠. | glass and roofing shingles, very loose 8.5 | × | Cemen | | sorted and |
| | | | | וו | | 2 | 18" | very loose 8.5 Extremely moist dark gray | black | e l | | deposited |
| | | | | | 1 | ,- | | /silty clay loam (CLAYEY- | [q | | 7.0 | mostly very |
| | 3 | 2 | | | | | | / SILT) with partially deter- | er | | 1 | fine sand |
| | | | 3 | | | | | / iorated brown thin organic | - | } | Ì | with little to some silt |
| | 4 | 1 | | - | | | | fiber oriented horizontally, | iame | (1) | j | to 15.0 feet |
| | | | 3 | | | | | firm, (ML-CL) 9.5 | ā | l | | over coarse |
| | | | | 4 | | 7 | 13" | Extremely moist dark gray | 10 | <u> </u> | 9.4 | silty allu- |
| 10 | | | | | 5 | | | silt loam (SANDY-SILT), com- | اه | | | vial sedimen |
| | 5 | 4. | | | | | İ | pact weak thinly bedded, (ML) | id | | | to 20.5 feet |
| | -2 | - 65 | 11 | | | | | grades downward to-10.5 | ns | <u> </u> | | over loamy |
| | | | 11 | 10 | | 21 | 24 " | Extremely moist dark gray | + | i . | | glacial till |
| Ì | | | | 10 | | | | very fine sandy loam (SILTY- | सं | pack | } | to end of |
| | _ | _ | 1 | | 7 | $-\!\!\!\!-\!$ | | SAND), compact, little to | inch | þē | | boring. |
| | 5 | 7 | - 0 | | | | Í | some silt, weak thinly bed- | 1 | ъ | | |
| | | | 9 | | | | | ded, (SM tending towards ML) | 2) | and | | |
| ļ | E | | | | | | | \sim grades downward to- $^{13.0}$ | - | ဟ | | |
| | | | _2 | | | 3 | 19" | Wet dark gray very fine sandy | 0 % | ρι | | |
| | | | | 1 | | | | loam (SILTY-SAND), very | É | ေ | 14.5 | |
| 15 | | 1 | | 1 | 2 | | | loose, very few brown nearly | | b 1 | | |
| | 7 | 2 | | | | | | vertical fine size roots, | 2 | Ţ | | |
| Ī | | | 1 | | | | İ | little to some silt, weak | 2 | ia | | 000480 |
| Ī | | | | 2 | | 3 | 32" | <pre>\ thinly bedded, (SM tending \ \towards ML)</pre> | | o C | | 000473 |
| İ | 1 | i | | 1 | 3 | | j | grades downward to- 15.0 | | Spe | | Continued on |
| Ì | 7 | 2 | | | | | 1 | See next sheet. | | رق | | sheet 2. |



Preliminary

Test Borings and Logs

East Aurora, New York 14052 • (716) 655-1717

| WELL | <u>MW-9 continued</u> | SURF. ELEV. | | | | | |
|---------|----------------------------------|------------------------------|--|--|--|--|--|
| PROJECT | 102nd St. Landfill well install. | Approx. 2/3rds distance sout | | | | | |

PROJECT 102nd St. Landfill well install. LOCATION of NE corner of landfill 1E85g Buffalo Avenue, Niagara Falls, NY toward force

CLIENT GEOTRANS/EPA and DOJ DATE STARTED 1/22/86 COMPLETED

| | 12. | | | OWS AMP | | | REC | DESCRIPTION & CLASSIFICATION | WELL WATER TABLE & REMARK |
|----------------------|----------|-----|------|------------|----------|----|-------------|---|---------------------------------------|
| DEPTH feet | SAM | 0/6 | 6/12 | | 16/24 | N | REC | DESCRIPTION & LEASINGATION | WATER TABLE & REMARK |
| | 7 | | ٦ | | | | | Extremely moist gray silt | |
| | 8 | 1 | | | | |] | loam (SANDY-SILT), very loose, little to some fine | (1) Bento |
| | | | 2 | | | 6 |] | size sand, very few brown | pelle (2) Super |
| | | | | 4 | | | 15" | nearly vertical fine size | 19.5 slott |
| 20 | | | | | 5 | | | roots, weak thinly bedded, | 20.0 stair |
| | 9 | 16 | | | | |] | \ | steel |
| | | | 13 | | |) | 20 " | grades downward to- | scree |
| | | | | 6 | | 19 | | <pre>Learning Text</pre> | (3) Special blend |
| | | | | | 12 | | | pact, little silt, weak thinly | sand (3) Speci |
| | 0 | 12 | | | | | | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ | |
| | | | 19 | | | | | grades downward to- 20.5 | · · · · · · · · · · · · · · · · · · · |
| | | | | | <u> </u> | | | Extremely moist redaish brown | 1 |
| | | | | | | | | gravelly loam (SANDY-SILT) | 3 5 1 2 5 7 |
| | | | | 1 | | | | with fine to medium size sand and 15 to 40% mostly subangu- | |
| 25 | <u> </u> | | | | | | | lar gravel, compact, massive | |
| | | | | | | | | | 4,6,and 8 obtained |
| | | | | | | | | | with 2' long 2" OD |
| | <u> </u> | | | | | | | Boring completed at 23.0 feet | spoon. |
| | <u> </u> | | | - | | | | | |
| | | | | | | | | | |
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| 30 | | | | | | | | | |
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| | | | | | | | | | |
| | | | | | | | | | 000474 |
| 35 | | | | 1 | | | | | 000474 |

N = NUMBER OF BLOWS TO DRIVE 2 8 3 " SPOON 12 " WITH 140 Ib. WT. FALLING 30 " PER BLOW.



DIMENSIONS,

Test Borings and Logs East Aurora, New York 14052 • (716) 655-1717

BORE HOLE

CLIENT

MW-10

SURF. ELEV.

PROJECT 102nd St. Landfill well install. 1E85g Buffalo Avenue, Niagara Falls

GEOTRANS/EPA and DOJ

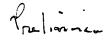
entrance post, entrance to

DATE STARTED 1/14/86 COMPLETED 1/14/86

LOCATION North 7 ft. off west side

| | | Ī | | ows | | | | | | |
|---------------------------|----------|--------------|-------------|-------|--------------|----|-----|---|------------|----------------------------------|
| ретн feet | N S | 0/ | | 112 / | ER 18 / | | REC | description & Classification | WELL | WATER TABLE & REMARKS |
| feet | 3 | 6 | | /18 | | N | | | | |
| | _ | | | | | | | Noticed crushed gravel in | | Augered (probed |
| | <u></u> | <u> </u> | _ | | | | | auger debris \sim grades downward to -1.5 | _ | without sampling |
| | | <u> </u> | | | | | | Extremely moist dark gray | | to 2.2 foot dep |
| | <u></u> | <u> </u> | <u> </u> | | | | | gravelly silt loam (SANDY- | th | Road shoulder |
| | 1 | 3 | | | | | | SILT) fill with 15 to 30% | ريا | gravel fill to |
| | _ | <u> </u> | 21 | | | 37 | | (angular gravel, compact, (ML) \sim clear transition to- $\frac{2\cdot 2}{\cdot 2}$ | ro | 1.5 feet over |
| | | | | 16 | | | 20" | | e q | mostly soil fil. |
| | | ! | <u> </u> | | 17 | | | Extremely moist distinctly | 11 | to 7.5 feet |
| | 1 | 10 | | | | | | mottled brown silt loam (SANDY-SILT) fill with mixed | t a | over clayey lake sediment to end |
| 5 | | • | 17 | | | | | 10 to 20% reddish brown | ins on. | ŧ |
| | 2 | 7 | _ | | | | | (SILTY-CLAY), compact, massive | ₽ | |
| | | | 11 | _ | | 20 | | \ soil structure, (ML with | 11 at | |
| | | <u> </u> | | 9 | | | 21" | \inclusion of CL) | a > 0 | |
| | | 12.0 | | | 7 | | | Wet distinctly mottled brown | 0 | |
| erese nement to the comme | 2 | 12 | | | | | | silt loam (SANDY-SILT) fill, | Z | |
| | <u> </u> | | 32 | | | | | compact, few fine roots, | | 8.0 |
| | _ | | | | | | | massive soil structure, (ML) | | e hole grouted to |
| | - | | | | | | | 7.5 | sur | face. |
| | | 1 | | | | | | Extremely moist faintly | พื้อไ | l instaled la fo |
| | ļ | | | | | | | mottled brown (SILTY-CLAY) very stiff, thinly laminated | | t of this descri |
| | <u> </u> | | | | | | | with very thin coarse silt | | e - refer to des |
| | | | | _ | | | | lenses, (CL) 8.0 | crip | ption coded MW-1 |
| | | | | | | | | - | , | |
| | _ | <u> </u> | - | | | | | Boring completed at 8.0 feet. | | |
| | | | | | | | | 12205 1102 20 111 0000 | | |
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garage /orangental





Test Borings and Logs

East Aurora, New York 14052 • (716) 655-1717

| MONITORI | NG |
|----------|--------|
| WELL | SO[-3M |

SURF. ELEV.

PROJECT 102nd St. Landfill well install.
1E85g Buffalo Avenue, Niagara Falls

LOCATION 13 foot to the east of MW-10

CLIENT GEOTRANS/EPA and DOJ

DATE STARTED 1/14/86 COMPLETED 1/15/86

| CLIENT | GEOTRANS/EPA | ano | DOJ DATE STARTED 1/14 | 4/86 COMPLETED 1/15/86 |
|---------------|---------------------------------------|------------------------|---|---|
| D∉PTH feet | BLOWS ON SAMPLER 0 6 6 12 18 24 N | REC | DESCRIPTION & CLASSIFICATION | WELL WATER TABLE & REMARKS |
| 5 | 1 11 52 52 1 52 1 13 1 13 1 16 8 1 16 | 16" | Noticed crushed gravel fill in auger debris | gravel fill 1.5 feet over mostly soil fill to 12. feet over clayey lake sediment portio clayey take sediment borir (1) Protect; casing. (2) Bentonit casing. (3) Super #6 stainles steel screen. Augered to played 10.013.5 feet 14 inch insi diameter. (3) (3) (3) (4) (5) (6) (7) (7) (8) (8) (8) (9) (9) (10) (11) (12) (13) (14) (15) (15) (16) (17) (17) (17) (18) (18) (18) (18) (18) (18) (18) (18 |
| 15 | 5 6 10 18 | 17" 28" | Extremely moist pinkish gray (SILTY-CLAY) stiff, thinly laminated with very thin coarse silt lenses, (CL) | pellets Spec |
| | 5 13 | | 16.5 Boring completed at 16.5 feet | l mo l |



DIMENSIONS, INC Julianiany

Test Borings and Logs
East Aurora, New York 14052 • (716) 655-1717

(tipy

(3) Super ±6 slotted stain-1b. WT. FALLING 18530 steel screen PER BLOW 18550

MONITORING

MW-11

Surf. Elev.

| PROJEC 1E85 | | | | | | | ll well installation LOCATION About 12 gara Falls, NY fence, E | | | |
|----------------|---------------|------------------|-----|-------|-----|------------|--|--|------------------------------|---|
| CLIENT | • | | | | | | | | | |
| DEPTH feet | SAMPLE NO. | 0/6 | SAI | / / / | 1 N | REC | DESCRIPTION & CLASSIFICATION | WELL | WATER TABL | E & REMARKS |
| | | | | | | | Frozen gray sand and crush gravel | (2) | | Road fill to approximatel |
| | 1 | 20 | 10 | 6 | 16 | 12" | Moist black industrial fill, fine | benton | | 0.5 feet ove industrial fill to 2.5 feet over mostly claye |
| 5 | 2 | | 3 | 4 6 | 7 | 7 " | loose when disturbed 2.5 Moist faintly mottled mixed brown and brownish gray (SILTY-CLAY) fill, stiff, (CL) 3.0 | stee | TO TOTAL | soil backfil to 3.0 feet over mixed and in layer clayey, loat |
| B | 3 | 2 | 2 | 3 4 | 5 | 11" | fine sandy loam (SILTY-SAND) fill firm and compact, (CL and ML-SM) | blac | | and silty soil backfil to 7.0 feet over mostly |
| | 4 | | 4 | 5 4 | 9 | 18" | Mostly reddish brown and brownish gray (SILTY-CLAY) with layers about 3 - 2 inch thick. Extremel moist distinctly mottled brownish | Two | 9.0 | clayey soil backfill to ll.0 feet over clayey lake sedimen |
| 10 | 5 | 3 | 4 | 4 | 8 | 26" | gray very fine sandy loam (SILTY- SAND) fill, firm and compact, noticed one coarse sand size red | ج ای | 11.0 | to end of boring. Samples 4 an 5 with 3' |
| | 5 | 72 | | 8 | | | Moist to 8.0 feet extremely moist distinctly mottled mixed mostly brownish gray (SILTY-CLAY) with | (1) | 13.0 | long 3" OD spoon. |
| 15 | | | | | | | wet brownish gray layers \(\frac{1}{2} - 1 \) inch thick below 8.0 feet, notice wet black cinders, fine to coarse size sand in pockets 1 - 3 inches in diameter between 10.0 and 11.0 \(\frac{1}{2} \) foot depth. | dwith 14 inside Difficu surface | inch O diamete Ut auge | foot depth D, 8½ inch r auger. ring from ut 2.0 foot |
| | | | | | | | See next sheet. | | - | ellet seal. cover. heet lA. |

N = NUMBER OF BLOWS TO DRIVE 2 and 3 " SPOON 12 " WITH 140



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| | مررون تدر |
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| 1 July | ~~ |

MONITORING

WELL

Mw-11 continued

| SURF. | FLFV | |
|-------|------|------|
| 00111 | | |

PROJECT 102nd Street Landfill well installation LOCATION About 12 feet inside road entrance

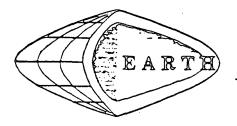
1E85e Buffalo Avenue, Niagara Falls, New York

fence. ENE side of sewer

GEOTRANS/EPA and DOJ CLIENT

DATE STARTED 1/24/86 COMPLETED 1/24/86

| DEST | APTE 5. | | S | OWS AMPL | ER | | DESCRIPTION & CLASSIFICATION | WATER TABLE & REMARKS |
|-----------------------|--------------|--|--------------|--|--|---|-----------------------------------|---------------------------|
| рег тн feet | S X | 0/6 | 6/12 | 12/ | 10/24 | 8 | | Water Fabe & Sannar |
| | | - | - | | | | Extremely moist brown (SILTY-CLAY | Augered to 13.0 feet. |
| | | | \vdash | ╁ | | | firm, thinly laminated with very | ,,, |
| | - | | - | | | | thin coarse silt lenses about 1/1 | 6" Apparently hit side of |
| | | | \vdash | | 1 | _ | thick spaced about 1 - 2 inches | sewer pipe between 9.0 |
| | - | - | | - | | | apart | 13.0 and 9.5 feet. |
| | | | | ! | | | D | No |
| | | ! | | 1 | \vdash | | Boring completed at 13.0 feet. | No water at completion. |
| | — | - | - | | | | | |
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| | <u> </u> | <u> </u> | ١. | 1 | $\perp \perp$ | | | |



Test Borings and Logs East Aurora, New York 14052 • (716) 655-1717

PROJECT 102nd St. Landfill well install. LOCATION Approximately 10 ft. north

MONITORING

SURF. ELEV.

| 1E85g | | | | | | | | | | ft. west of east |
|-------------------|-------------|--|------|-------|-------|-----|------------|--|---|---|
| CLIENT | | | OT R | ANG | S/E | PA_ | and | DOJ DATE STARTED | 16/86 | COMPLETED 1/16/E |
| DEPTH feet | MPLE 10. | | | AMPLI | ER | | REC | DESCRIPTION & CLASSIFICATION | WELL | Water table & Remarks |
| feet | AS. | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ | 12 | 18 | 15/24 | Ň | | | | |
| 5 | 2 2 3 | | 12 | 5 | 19 | 29 | 19" 22" | moist reddish brown (SILTY-CLAY) fill with 15 to 40% cinders, very stiff, (CL) 1.5 Extremely moist distinctly mottled olive gray silt loam | o b b c c c c c c c c c c c c c c c c c | fill to 4.5 feet over coarse silt lake sedime 3.0 to 5.0 feet over water sorted and deposited mostly fine 5.0 sand, littl silt to 6.0 feet over clayey lake sediment to 7.0 end of bori 8.0 Protective casin Bentonite pellet Super #6 slotted stainless steel screen. Cement-bentonite grout. les 1 and 2 obta ith 3" OD-3 ft. spoon, sample 3 2" OD-2 ft. lon |
| | | | | | | | | | | 000479 |



Test Borings and Logs

East Aurora, New York 14052 • (716) 655-1717

WELL MW - 13 SURF. ELEV. _

PROJECT 102nd St. Landfill well install.

1E85g

Buffalo Avenue, Niagara Falls, NY

LOCATION 5.0 feet south of existing MW-14.

CLIENT GEOTRANS/EPA and DOJ DATE STARTED 4/14/86 COMPLETED 4/14/86

| DEPTH SYMPIE | PIE. | | S | OWS AMPI | ON ER | | DESCRIPTION & CLASSIFICATION | WEL | J. | WATED | TARIF A | REMARKS |
|--------------|----------|--|--|--------------|--------------|-----|-------------------------------|-----------------|---------|-----------|---------|-----------------|
| | | $2 \frac{12}{18}$ | 15/24 | N | | "- | - | WATER | IADIL 6 | REMARKS | | |
| | | | | | | | | stee] | r t | | | |
| | | | <u> </u> | _ | | | | | be | | Slow | augeri |
| | | <u> </u> | ļ | | <u> </u> | | | * | t-ben | i | belo | w 5.0 |
| | - | | <u> </u> | | | 1 | Drilling without sampling to | lac | emen | | feet | |
| | <u> </u> | | - | - | - | - | 8.5 foot depth. |) black pipe | | 3.0 | (1) | Bentoni |
| | <u> </u> | | - | | | | | I | | <u></u> 0 | | pellets |
| | <u> </u> | | | | - | | Refer to log MW-14 for sample | 2" | (1) | 405 | (2) | Super # |
| | | | | Τ | | i — | descriptions. | | | | | slotted stainle |
| 5 | | | | | | | | - | end | 4.8 | | steel |
| | | | | | | | | (2) | re! | | | screen. |
| | | <u> </u> | <u> </u> | <u> </u> | | | | 2) | al blo | | | |
| | | <u> </u> | | <u> </u> | | | | | al | • | | |
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| | | <u> </u> | | <u>!</u> | | | | | Spe | | | |
| | - | | | | | | | (1) | | | | |
| | | | | | | | | 1 (1) | | 8.5 | | |
| | | | | | | | Augering completed at 8.5 fee | e. N | lo | wate: | r at | com- |
| י חי | | | | | | | | | | tion | | |
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| | | | | | | | | ! | | ſ | 100. | 3 - |

| N = NUMBER OF BLOWS TO DRIVE | " SPOON " WITH | lb. WT. FALLING | PER BLOW. |
|------------------------------|----------------|-----------------|-----------|
| | 16 - 3 1 - 1 | 3 | • |



Test Borings and Logs

East Aurora, New York 14052 • (716) 655-1717

MONITORING MW-14 WELL ~

SURF. ELEV. ____

102nd St. Landfill well install. LOCATION Approx. 150 ft south of Buffal 1E85g Buffalo Avenue, Niagara Falls, NY

Ave. 20 ft east of east fenc.

CLIENT GEOTRANS/EPA and DOJ DATE STARTED 4/11/86 COMPLETED 4/11/86

| | 12 | | | BLOWS ON SAMPLER | | 77.0 | • | WEL | Τ. | | |
|------|-----|---|----------|------------------|-------|--------|-------|---|------------|---------------------|-------------------------------|
| feet | SAM | 1 /6 | 6/12 | 12/ | 15/24 | N | REC | DESCRIPTION & CLASSIFICATION | (2 | | WATER TABLE & REMARKS |
| | 1 | 3 | | | | | | Extremely moist brown silt loam | | | |
| | | | 6 | | | | | (SANDY-SILT) soil fill with | | 1 | Soil fill |
| | | | ۳ | a | | 18 | ! | \trace gravel size slag (ML)0.5 | | grout | 0.5 feet o |
| | | ┼- | - | 1 7 | 8 | _ | | Moist rust color mixed demo- | | 7 | demolition |
| | | +- | - | ┼ | 0 | | 27" | lition debris, coarse silt to | | c | debris to |
| | 1 | 16 | <u> </u> | | | | | fine gravel size slag and wood | 1 | hentonite | feet over |
| | _ | ┿- | 13 | 3 | | | | material, noticed rubber | | 1 | ash and ci ders to 4. |
| | 2 | 4 | | | | | | pieces at 1.6 feet, little glass at 1.8 feet, compact 2.0 | pipe | + | feet over |
| | | | 111 | <u> </u> | | 34 | | ' grades downward to | ù. | 1 | olition de |
| | | | | 23 | | | | Moist mixed dark gray and | | 2 | to 8.0 fee |
| 5 | | | | | 17 | | 16" | black flyash and cin- | e 1 | 4 | over coars |
| | 3 | 15.5 | | Ĭ | | | | ders, with coarse silt to | teel | ent | |
| | | | 38 | | | | | 'fine gravel size slag and | S | ٦ | sediments |
| | | | | 36 | | 74 | 21 " | concrete fragments, compact | ack | 9 | - 11.0 feet |
| | | Ī | | 35 | 14 | | | grades downward to - $4 \cdot Q$ | ac | - 0 | 11.0 feet |
| | 7 | 13 | | | | | | Moist black demolition debris | b1 | | Duna, crae |
| | | Ī | 13 | - | i | | , | with coarse silt to coarse | Q | (1) | |
| | | - | | - | | | i | sand size tar like material, | I | | 15.0 feet |
| • | 4 | 2 | - | <u> </u> | 1 | { | ; | noticed layers of roofing | - 2 | | 8 6 SILLY CLAY |
| | | | 3 | ├ | | 7 | 17" | paper from 4.2-4.8 feet, noticed wood from 4.8-5.0 | • | | graco-racu - trian sedi |
| | | | <u> </u> | 4 | | | | foot depth, noticed roofing | 73 | $\frac{\lambda}{2}$ | ments to 1 |
| 10 | | <u> </u> | | | 3 | | , | \paper in layers and fused to- | 160 | Da | feet over |
| | 5 | 2 | | | | | | gether from 5.0-8.0 foot depth | ည်းတို | - | loamy glac |
| | | | 2 | | | | | some wood and plastic at 6.5 | te 1 | u | till to en |
| • | | | | 3 | | 5 | | feet_clear transition to- 8.0 | o t ee | E G | of boring. |
| | | | | | 3 | 1 | 35" | Extremely moist faintly mot- | slo | ם | |
| | 5 | 2 | | | | \neg | | | 9 8 | blend | Driller no |
| | | | 5 | | - | | | (SANDY-SILT) with little fine | es: | b 1 | hard drill |
| | | | | | — i | | | to medium size brown roots | er nle | | 2. 4.0 3.0 |
| | t | WR | , | | | \neg | | oriented vertically, loose, | pe | al | foot depth |
| | | | | 2 | | 3 | 5 * | 'oriented vertically, loose, | Su ta | Cj | 14_50VA readin |
| 15 | | _ | | 4 | 1 | - | | 1 grades downward to -11.0 | <u>.</u> |) ad | 14_507A TERUTION 15.0.100 ppm |
| | | | | | | | | Wet distinctly mottled gray | | | through |
| | 7 | WR | | | | _ | | very fine sandy loam (SILTY- | | | to 8.0 fo |
| | | | 3 | | | اے | | SAND) with fine and medium | | | aepth. |
| į | | | | 3 | | 6 | 35" | size brown root fibers or- | (1) | | |
| | | | | | 7 | | | iented vertically, loose, | (-) | | Continued on |
| İ | 7 | g | | | | | | weak thinly bedded, (SM) | | | sheet 2. |

000481N = NUMBER OF BLOWS TO DRIVE 2 and 3" SPOON 12 "WITH 140 Ib. WT. FALLING 30 " PER BLOW.



Test Borings and Logs

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| MON | Ι | TO | R | I | N | G |
|-----|---|----|---|---|---|---|
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WELL MW

<u>MW-14 continued</u>

SURF. ELEV.

PROJECT 1E85g CLIENT

102nd St. Landfill well install.

Buffalo Ayenue, Niagara Falls, NY
GEOTRANS/EPA and DOJ

fence 3

LOCATION Approx. 150 ft. south of

Buffalo Ave. 20 ft east of e

DATE STARTED 4/11/

ence line 2 4/11/86 COMPLETED 4/11/8

| | <u> </u> | | | OWS AMPL | | | | | L |
|-------|--|--|----|--------------|----------|---|------|---|----------------------------|
| DEPTH | SAMPLE | 0/6 | 6/ | 112/ | , | N | REC | DESCRIPTION & CLASSIFICATION | WELL WATER TABLE & REMARKS |
| | 7 | | ٥ | | | | | Wet distinctly mottled olive | 18.0 |
| | | | | | | | | gray very fine sandy loam | |
| | | | | | | | | (SILTY-SAND) with fine | Augered to 18.0 feet |
| | | | T | † | | | | size brown root fibers | with 14 inch augers |
| | | | | Ť | | | | oriented vertically, very | inch inside diameter |
| 30 | | | - | | | | | loose, material tends to | |
| | | - | ├ | +- | <u> </u> | | | liquify when disturbed, weak thinly bedded, (SM) 15.0 | WR-Sampler penetrati |
| | - | ! | - | 1- | | | { | Extremely moist mixed and in | with weight of ro |
| | | _ | | ┼ | | | | layers reddish brown and gray | WH-Sampler penetrati |
| | | | _ | ╀ | - | | | brown, (SILTY-CLAY), firm, | with weight of ro |
| | | | ! | <u> </u> | | | | thinly laminated with very | and hammer. |
| | | | | <u> </u> | | | | thin coarse silt lenses,(CL) | |
| , | | | | <u> </u> | | | | 17.0 | Samples 1, 3, 5, and |
| | | | | | | | | Moist pinkish brown gravelly | obtained with 3" out |
| | | | | | | | | loam (SANDY-SILT) with 15 to | side diameter 3 foot |
| 25 | | | | 1 | | | | 40% subangular fine to coarse | |
| | | | | | | | | size gravel, compact, massive soil structure, (ML) 18.0 | 1 |
| | | | İ | İ | İ | | | Soll Structure, (ML) 10.0 | Samples 2, 4, and 6 |
| | | | - | <u> </u> | | | | Boring completed at 18.0 feet | obtained with 2° out |
| | | | | <u> </u> | i | | | | long split spoon. |
| | | | | | | | | | tong spire spoon: |
| | | _ | | | | | | | (1) Bentonite pellet |
| | | | | | | | | | (2) Protection leader |
| | | | | | | | | | (2) Protective locki |
| | | | | | | | | | COVEI. |
| 30 | | | | İ | | | | | No water at completi |
| 100 | | | | | | | | • | |
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| 25 | | | | | | | | • | 000402 |



N = NUMBER OF BLOWS TO DRIVE .

DIMENSIONS, INC.

___ " WITH _ _ _ TIb. WT. FALLING ___ " PER BLOW.

Test Borings and Logs

East Aurora, New York 14052 • (716) 655-1717

| NITORIN WELL | | MV | J 1 | · 5 | | | Past Maria, New York 1992 (1995) | Surf. Elev | |
|-----------------|----------------|------------------|----------------|------------|---------------|----------|-------------------------------------|------------------------------|---------------------------|
| | | | | | | | | | |
| | | 102 | 2nd | <u>s</u> | <u>t .</u> | La | ndfill well install. LOCATION 5 fee | et North of existing | |
| 1E85g | | | | | | | | | |
| CLIENT | | GEC | ביינר ביינר | יאבּג | S./. | EPA | DATE STARTED 4 | /10/86 COMPLETED 4/10/1 | |
| DEPTH S | SAMPLE NO N | 0 | | | WS O | | | DESCRIPTION & CLASSIFICATION | WELL WATER TABLE & REMARK |
| feet & | Ž | 6 6 | 12 | | 24 | N | | Ž | |
| | _ | _ | 4 | _ | | | | Top of we | |
| - | | | | | | | | 사이 라 3. pelom | |
| _ | _ļ | | - | | | | | face. | |
| | - | | - | - | - | | | | |
| | _ | | \dashv | | _ | | Drilled without sampling to | [유년 ^{호 최} 2 - 5 | |
| - | - | | _ | | | | 7.0 foot depth. | 0.1 foot | |
| - | _ | | _ | | | | | 3.5 der bento | |
| | | | \dashv | | | | | | |
| - | _ | | _ | | | | |) Q | |
| 5 | _ | | | | | | | (2) E (1) Bento | |
| <u> </u> | _ | | | | | | | pelle | |
| <u> </u> | | | _ | | | | | pelle | |
| | | | | | | | | o q _{6.5} (2) Super | |
| | | | | | | | | (1) 7.0 slott | |
| | | | | | | | | stain steel | |
| | | | | | | | Augering completed at 7.0 fee | | |
| | | | | | | | - | | |
| <u> </u> | _ | | | | | | | Water table at 6.9 | |
| <u></u> | _ | | \perp | | _ | | | below surface at c | |
| 10 | _ | | | | | | | pletion. | |
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Test Borings and Logs East Aurora, New York 14052 • (716) 655-1717

SURF. ELEV. _

| MONI | TORING | 3 |
|------|--------|-------|
| | WELL | MW-16 |

Landfill well install. LOCATION Approx. 400 ft south of Buffa.

1E85g DATE STARTED 4/9/86 COMPLETED 4/10/86 CLIENT

| | = | ĺ | | OWS | | | | | | | |
|-----------------------|--|-------------|----------------|--------------|---------|-----|-----|---|------------------|-------------|------------------------|
| рерт н feet | SAMP | U /6 | 6/12 | 112/ | 10/ | N. | REC | DESCRIPTION & CLASSIFICATION | WE: | LL | WATER TABLE & REMARKS |
| reet | | 12.0 | <u> </u> | 1 16 | / 24 | | | Moist dark brown silty clay | - | يدا | |
| | | | 14 | 1 | | 30 | | loam (CLAYEY-SILT) fill with 5 to 15% subangular gravel, | þe | grout | Soil fill to |
| | _ | | | 16 | 1 1 1 | | 1 | very stiff, (ML) 0.5 | pi] | l e | 0.5 feet ove |
| | 1 | 5 | | | 11 | | 20" | Moist dark gray flyash and | 1 | onite | cinders to |
| | 1 | - | | <u> </u> | | | 1 | cinders, coarse silt to gravel | əə | 1 4 | 5.0 feet ove |
| | 2 | 8 | 4 | 1 | | | | size slag and cement fragments | st | ben | silty Lake |
| | - | 0 | 6 | - | l | | | noticed wood fragment at 1.7 | ck | 1 | Tonawanda soil fill to |
| | | | _ | Δ | | 10 | 11" | feet-grades downward to- 2.0 | a | en | 6.5 feet ove |
| Ε, | | | | " | 3 | - | 1 | wet dark gray to black fly- | b1 | ement | fine sandy |
| | | 2 | | | | |] | ash and cinders, coarse silt | er | Ŭ | 5.2 alluvial sed |
| | | | Δ | | | | | \to gravel size slag and con- \crete fragments, loose, 5.0 | - | | iments to 16.5 feet |
| | | | | 3 | | 7 | 25* | Moist distinctly mottled | ame | (1) | |
| | | | | | 5 | | | olive gray silty clay loam | dia |] | sorted and |
| | 3 | 5 | | | | | | (CLAYEY-SILT) fill, firm, | ່ ຍີ | - | 7.2 deposited |
| | | | 5 | | | | | (ML-CL) 6.0 Moist faintly mottled olive gran | P | | mostly sand |
| | 4 | ٦ | | | | | | silt loam (SANDY-SILT) fill, | มร | | and gravel to |
| | | | 1 | | | 2 | | loose, (ML) | | | loamy glacia |
| | | | | 1 | | | 12" | ' grades downward to | ch | | till to end |
| 10 | <u> </u> | | | | 1 | | | Extremely moist olive gray | 1 n |]. | of boring. |
| | 5 | WH. | | | | | | very fine sandy loam (SILTY- SAND), loose, with some silt, | 0 | | Noticed |
| | <u> </u> | | 2 | | | _ | | with some partially decom- | Two | ck | slight chem- |
| | | | | -3 | | _5 | 22" | 'posed root fiber oriented | | ro - | 1 5 ical odor to |
| | - | | | | 2 | | 22 | horizontally, weak thinly | ۲ | <u>G</u> | sample #2,3, |
| | 5 | 3 | | 1 | | | | pedded, (SM-ML)grades downward to -8:0- | i stain creen | nd | and 4. |
| | | | 3 | | | | | - Wel nack brav verv tine sanovi | | sa | OVA-read 100 |
| • | 6 | WR | 1 | | | | 10" | loam (SILTY-SAND), very loose | | ים <u>י</u> | ppm from |
| • | | | WR | WH | \prec | WH; | | few fine size black root | | en | augers at |
| 15 | | | -i | MU. | | | | fibers oriented vertically, | slo | ble | approximatel |
| | _ | | 一 | | WH | | į | some silt, weak thinly bedded (SM tending towards ML) | #6 | | 6.0 foot depth. |
| | 7 | -2 | ء | 1 | | | | grades downward to- | is cr | ia | debru: |
| · | | | | 10 | | 18 | 28" | / | Super | ၁ခင | 16 5 |
| • | | | $\neg \dagger$ | - 0 | 9 | | | See next sheet. | J | Spe | 16.5 Continued o |
| | | 36 | + | - | | | | | (] | ١ | sheet 2. |

N = NUMBER OF BLOWS TO DRIVE $\frac{2.6.3}{2.6.3}$ SPOON $\frac{12}{1.2}$ WITH $\frac{140}{1.0}$ Ib. WT. FALLING $\frac{30}{30}$ PER BLOW:



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MONITORING WELL

MW-16 continued

SURF. ELEV. _

1E85g

PROJECT 102nd St. Landfill well install. LOCATION Approx. 400 ft. south of Buffe Buffalo Avenue, Niagara Falls, NY

Ave. 20 ft east of east fence

CLIENT GEOTRANS/EPA and DOJ DATE STARTED 4/9/86 COMPLETED 4/10/86

| | E | | BLOWS SAMPI | | | REC | DECEMBER OF STAFFING STAFF | | |
|----------------------|-----|-----|----------------|-------|---|-----|---|------------------------|--|
| DEPTH feet | SAM | 6 6 | 12 / 18 | 16/24 | N | KLC | DESCRIPTION & CLASSIFICATION | WELL | WATER TABLE & REMARK |
| | 7 | 1 | 28 | | | | Wet gray gravelly loamy sand | (1) | 18.0 |
| 20_ | | | | | | | (SAND) with 20 to 40% mostly subrounded fine size gravel with occasional cobble, fine to medium size sand, noticed large shell fragment at 16.6 feet, compact, loose when disturbed (SW-SP) | obtai foot pler. | les 1,3,5, and ined with 3° On split spoon sate. Les 2,4, and 6 |
| | | | | | | | Moist pinkish brown gravelly loam (SILTY-SAND) with 15 to 40% subangular fine to coarse size gravel, dense, massive | obtai | ined with 2" OI ot split spoon |
| | | | | | | | soil structure, (ML) 18.0 | | Bentonite pelle |
| 2.5 | | | | | | | Boring completed at 18.0 feet. | with | ered to 18.0 fe 14 inch auger: inside diamete |
| <u> 25</u> | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| 30 | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | • |
| | | | | | | | | | 000485 |
| | | | | | | | | | 000300 |



Test Borings and Logs

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Capa

MONITORING

WELL MW-17

SURF. ELEV.

PROJECT

102nd St. Landfill well install. LOCATION Near river

1E85g

Buffalo Avenue, Niagara Falls, NY

CLIENT GEOTRANS/EPA and DOJ

DATE STARTED 4/17/86 COMPLETED 4/18/86

| DEP TH | 171E | | | OWS AMPI | | | REC | | DESCRIPTION & CLASSIFICATION | 7.7 | ELL | WATER | BLE & REMARKS |
|---------------|------|----------|----------|--|----------------|--|--------------|----------------|--|-----|--|---------|-------------------|
| DETIN | SAN | 1/6 | | 12/ | | × | | | DESCRIPTION & COGSITICATION | In | بابلت | WAIERIA | BLE & REMARKS |
| feet | 1 | 8 | <u> </u> | / 10 | / | - | | - | Extremely moist dark gray | ╁ | | | |
| | - | 0 | - | ! | | - | } | | silt loam (CLAYEY-SILT) fill | 1 | | Δ | ugered w |
| | ļ | 1 | -6 | ┼ | | 16 | 1 | | with 5 to 15% gravel, little | | | | 4 inch O |
| | | | | 10 | | | ļ. | $ \setminus $ | fine to coarse size sand, | | | | inch II |
| | | | | | 12 | | 26" | \ \ | compact, (ML) 1.0 | ŀ | | | ugers. |
| | 1 | 14 | | | | | | N | Moist mixed dark gray silty | 1 | | _ | -3 |
| | | | 11 | | | | | \ | clay loam (CLAYEY-SILT) and | | | (| 1) Bento: |
| | _ | 3.4 | | | | Ī | 1 | | reddish brown gravelly loam | | | · | pelle |
| | - | 1.4 | 7 7 | † | İ | | İ | 1 | (SAND-SILT-CLAY) fill with | | | | seal. |
| | | | | 5 | j - | 16 | } | 1 | 15 to 40% gravel, trace slag | | | | |
| _ | | | | - | 3 | _ | | | and reddish brown broken | | | | ostly so |
| 5 | 3 | 1 | | <u> </u> | 1 3 | | 6 ™ | 1 | brick fragments, little | | | | ill to 2 |
| | ے | 1 | - | - | | | | \mathbb{N} | fine to coarse size sand, | | diameter black steel pipe Cement-bentonite grout | £ | eet over |
| | | | _3 | - | | 8 | | M | compact, (ML-CL) 2.0 | - | ro ro | C | rush san |
| | | | | 5 | <u> </u> | ! | | M | Moist gray crush sand and | |] B | a | nd grave |
| | | | | | 7 | | 21" | M_{I} | gravel fill containing boul- ders (maybe part of rip-rap) | | 9 0 | Ē | ill to 5 eet over |
| | ď | 4 | | | | | ~ - | III | loose when disturbed 5.0 | 1 | te | 1 | ostly so |
| | | | 4 | | | | | Ш | Moist brownish may gravelly | - | S | · · · · | ill with |
| , | 4 | 2 | | | | | | ! | loam (SANDY-SILT) fill with | | X T | | inder-fl |
| | | | ٦ | | | | | ti V | 15 to 40% gravel, little | | 90 | i | nterlaye |
| | | | | 1 | | .2 | 4 " | ii | fine to coarse size sand, | | ام - | t | o 7.5 fe |
| 10 | | | | - | 5 | | | III 1 | (very loose, (ML) 5.5 | | r | 0 | ver flya |
| 10 | | | | | - | | | \prod | Extremely moist dark gray | | le le | а | nd cinde |
| | _5 | 5 | | | | | | | flyash and cinders, fine | | e le | f | ill to 8 |
| | | | 6 | | | | | | silt to coarse sand size, | | a l | 11.0 f | eet over |
| | | | | 6 | | 12 | | | lloose, 6.0 | | d j | | avy wash |
| | | | | | 6 | | 22° | | Extremely moist to 6.5, mois | t | 0 | | ostly sa |
| Ī | 5 | 9 | | | | | | | below mixed dark gray silt | 1 | side 1 | | nd grave |
| | | | ם נ | | | | | [\\ | loam (CLAYEY-SILT) and red- | | S | 112 11 | lluvial |
| Ī | 6 | | • • • • | | | | | } } | dish brown gravelly loam | 1 | -7 | | ment to |
| İ | | | 2 | | | \neg | | | (SAND-SILT-CLAY) fill with | | Ч | | eet over |
| İ | | | - | | | 4 | 18" | | 15 to 40% gravel, trace slag | | J J | | ilty all ial sedi |
| j | | | | 2 | | | | | and cinder fragments, (ML- CL) 7.5 | | ine | | o 13.0 f |
| 15 | | <u>1</u> | | | 3 | { | | | Extremely moist dark gray | { | 016 | | ver coar |
| 1 | . 7 | 3 | | | | | | | flyash and cinders, fine | | Two Ck 1 | | ilty all |
| l | | | 4 | | | _ [| | | silt to coarse sand size, | | al | | ial sedin |
| Ī | | | | 6 | | 10] | 33* | | loose, 8.0 | | | , | |
| ſ | | | | | ا م | | | | 0.0 | 1 | oe c | Contin | ued on |
| Ţ | 7 | | \dashv | | - | | | | See next sheet. | 1 | - Lord | sheet | າ |

000436

N = NUMBER OF BLOWS TO DRIVE 2 & 3 " SPOON 12" WITH 140 Ib. WT. FALLING 30 " PER BLOW.



Test Borings and Logs
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_ 26.2

MONITORING

| WELL _ | MW-17 C | ontinued |
|--------|---------|----------|
|--------|---------|----------|

SURF. ELEV.

PROJECT 102nd St. Landfill well install. LOCATION Near river
1E85g Buffalo Avenue Niagara Falls NY

CLIENT GEOTRANS/EPA and DOJ DATE STARTED 4/17/86 COMPLETED 4/18/86

| DEPTH | MPLE | _ | | OWS AMPL | ER | - | REC | C DESCRIPTION & CLASSIFICATION | | WATER | R TABLE & REMARKS |
|--------|---------------|-------------|--------------|----------------|--|--------------|--|---|-------------------|----------|-----------------------|
| £ 0.0+ | SA | 6 | /12 | 1 / | 16/24 | N | | | - | | |
| | 7 | <u> </u> | 8 | | | | | Extremely moist to wet gray- ish brown very gravelly | be | | to 15.0 feet |
| | 8 | 2 | | - | <u> </u> | <u> </u> | 4 | (SAND) with 40 to 60% mostly | | ļ | over water |
| | | <u> </u> | 2 | <u> </u> | ļ | _ | 17" | fine size rounded gravel, | Q | | sorted and |
| | <u></u> | | | 3 | | 5 |] | medium to coarse size sand, | e] | | deposited, |
| | | | | | 3 | |] | very loose, stratified, no- | te | - | mostly fine |
| | 6 | 13 | | | | | | ticed flat brown wood chips | S | | size sand, |
| | | Ť | 4 | | | | 1 | and fragments at upper bound- | ۲ کا اد | ۷ . | little silt |
| | - | | | i | | 7 | | ary, noticed mostly rounded | 10 (| a a | to 25.0 feet |
| | - | + | | 3 | | _ | 35" | brick, glass, cinder and slag | | Ž4 | over water |
| | - | 1 - | | <u> </u> | 4 | | | (GP-SW) 11.5 | 1 | 5 | sorted and |
| | ! 9 | 6 | | | <u> </u> | | 1 | Wet black silt loam (CLAYEY- | | 5 | deposited mostly sand |
| | <u> </u> | <u> </u> | 16 | | | <u> </u> |] | SILT) with fine brown roots, | = 4 | n | with some |
| | 10 | 8 | | | | | | firm, (ML-OH) 12.0 | 2 | 223_5 | gravel to |
| | L | | 10 | | | | 1 | Extremely moist distinctly | 15 (| บไ | 26.0 feet |
| | | | | g | | 18 | | mottled dark gray silt loam | | | over water |
| 25 | $\overline{}$ | | | | 8 | | | (CLAYEY-SILT), stiff, few med | 7 d_ | <u>.</u> | sorted and |
| | 177 | 12 | | | Ω. | | 34 " | 'ium size brown nearly.verti- | slotted | <u> </u> | aeposited |
| | - | | | | | | | cal roots, (ML) 13.0 | 15 77 | Dec 1 | sand and |
| | - | ! | 1.8 | | - | 38 | | Wet dark gray silt loam | 1 00 1 4 | 2 | gravel to |
| | | | | 20 | | | | (SANDY-SILT), very loose, some fine size sand, weak | 1 1 2 | ٥ | 28.0 feet |
| | | | | 1 | 31 | | | , thinly bedded, partially brow | ! ≠≠ ; ; ; | ļ | over water |
| | 7.1 | 29 | | | | | | , flat organic fiber oriented | # 5 5 | | sorted and |
| | | | 10 | | | | | horizontally, (ML) | Super | ĺ | āeposited |
| | 12 | 1.77 | | | | | | L grades downward to- 15.0 | Su | 20 5 | sand to 29.0 |
| | | 1 : | WP | | | | | Dot don't wone to block fine | - | 28-5 | feet over |
| | | | WE | 3 | | ₹4 | 21" | sandy loam (SILTY-SAND), | † | 129.0 | silty glacial |
| 2.0 | - | | | 12 | | | | loose, mostly fine size sand, | (1) | | till to end |
| 30 | | | | | 5 | | | 'little medium size sand, littl | | 30.0 | of boring. |
| | | | | | | | | 'silt, weak thinly bedded, few | | | |
| | | | | | | | | light brown fine to medium | 1 | | (1) Bentonite |
| | | | | | |] | | size nearly vertical roots, | - | | pellets. |
| | | | | | | | | the black color zones are in | | | |
| | | | | | | \neg | | occasional lens 1-2 inches | | | No visual |
| | - | | i | - i | i | \dashv | | ithick and along some of the | | | evidence-of |
| 1 | | | | - | | | | old root channels, noticed | | | liquid con- |
| _ | | | | | | - 1 | لـــــــــــــــــــــــــــــــــــــ | root and silt content de- | | <u> </u> | tamination. |
| | | | | | | | | creases below 21.0 foot depth | | | 000487 |
| | | | | | | | | trace rounded gravel below | | , - | |
| 25 | | | | | | | | 24.0 feet, (SM) | Cont | ınued | on sheet 2A. |

N = NUMBER OF BLOWS TO DRIVE $\frac{2 \& 3}{3}$ SPOON $\frac{12}{12}$ WITH $\frac{140}{140}$ Ib. WT. FALLING $\frac{30}{120}$ PER BLOW.

- - - grades downward to- '-



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| MON | ITC | RIN | G |
|-----|-----|-----|---|
|-----|-----|-----|---|

SURF. ELEV.

| PROJECT | 102nd St. Landfill well install. LOCATION | Near river |
|---------|---|------------|
| LE85g | Ruffalo Avenue, Niagara Falls, NY | |

CLIENT GEOTRANS/EPA and DOJ DATE STARTED 4/17/86 COMPLETED 4/18/86

| DEST | E . | BLOWS ON SAMPLER | | | | | DESCRIPTION & CLASSIFICATION | WATED TARIE & DEMARKS | | |
|-------------|----------|---------------------|------|------------|--|----------|--|-----------------------|--|--|
| DEPTH | X X | 6 | 6/12 | 12/ /18 | | N | DESCRIPTION & CLASSIFICATION | WATER TABLE & REMARKS | | |
| | | | | <u> </u> | <u> </u> | _ | Wet grav gravelly (SAND) with | Smelled NAPA odor | | |
| | | \sqcup | | | <u> </u> | <u> </u> | 15 to 40% mostly rounded | after removing plug | | |
| | | | | <u> </u> | <u>. </u> | | gravel of mixed lithology, | driver after augering | | |
| | | | | | | | fine to coarse size sand, | to 30.0 foot depth. | | |
| 20 | | | | | | | compact, loose when dis- turbed, stratified, (SW) | • • • | | |
| | | | | | | | | Samples 1,3,5,7, 9, | | |
| | | | | | | | , grades downward to 26.0 | and 11 were obtained | | |
| | | | | | | | \mer dray very draverry (SAND) | with 3" OD-3 foot | | |
| | | | | | | | with 40 to 60% mostly rounded | long spoon. | | |
| į | | | | | | , | ' gravel of mixed lithology, ' fine to coarse size sand, | Samples 2,4,6,8,10, | | |
| | | | | | | | compact, loose when dis- | and 12 were obtained | | |
| | | | | | <u> </u> | | turbed, stratified, (SW,GW) | with 2" OD - 2 foot | | |
| j | | | | <u> </u> | <u> </u> |] | $\frac{1}{1}$ - clear transition to $\frac{28.0}{1}$ | long spoon. | | |
| Ì | | | | | | | / Wet gray (SAND), very loose, | - | | |
| 25 | | | | ! | | | medium to coarse size sand, | | | |
| | | | | <u> </u> | | | / / 'SP) 29.0 | | | |
| | | | | | ! | | / /wet pink gravelly silt loam | | | |
| • | | | | - | | | ///CLAYEY-SILT), firm, little | | | |
| } | | | | | | | fine to coarse size sand, | | | |
| ŀ | | | | | | | / weak thinly bedded to mas- | | | |
| | | | | | | { | // sive soil structure, (ML) | | | |
| | <u> </u> | | | | | | 30.0 | | | |
| ļ | | | | | | | | | | |
| ļ | | | | | | | Augered without sampling | | | |
| 1 | | | | | | | 33.5 | | | |
| 30 | | | | | | | | | | |
| | | | | | | · | Boring completed to 33.5 feet | | | |
| Ī | | | | | - | | / | feet after removing | | |
| Ī | | - | | | | | / | plug driver after | | |
| Ī | Ī | ī | | | | | / | augering to 30.0 fo | | |
| - | | Ť | j | | i | | | depth. | | |
| | i | Ì | Ì | | ĺ | | / | | | |
| | | | T | | <u> </u> | | | | | |
| - | <u>'</u> | - | | | | | | | | |
| - | | - | | | | \dashv | | 000489 | | |
| 25 | | —∔ | | | | | | 000400 | | |

N = NUMBER OF BLOWS TO DRIVE 2 & 3 "SPOON 12" WITH 140 Ib. WT. FALLING 30 " PER BLOW.



Test Borings and Logs

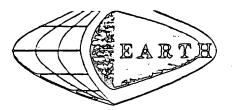
East Aurora, New York 14052 • (716) 655-1717

MITORING

| WELL . | <u>MW-18</u> | | SURF. ELEY. |
|---------|--|-------------|---------------------------|
| PROJECT | 102nd St. Landfill well install. Buffalo Avenue. Niagara Falls. NY | LOCATION 5. | 0 feet north of MW-17 |
| - | GEOTRANS/EPA and DOJ | | 4/22/86 COMPLETED 4/22/86 |

| NEDT L | VPLE 5. | | 5 | OWS AMPI | LER | | DESCRIPTION & CLASSIFICATION | WELL | | WATER TABLE & REMARKS | |
|-----------------------|------------|----------|--|--|-------|----------------|-------------------------------|---------------------------|-------|-----------------------|--|
| ре етк feet | Žž | υ/ ε | 12 | 12/ | 18/24 | × | PEPER INTE E MADRIMATION | | | WATER TABLE & EBMARKS | |
| | | <u> </u> | | _ | - | | | e | ite | | |
| | | <u> </u> | - | - | | | Drilling without sampling to | pipe | On | | |
| • | | | ├ | | - | | 12.45 foot depth. | 1 | int | | |
| | - | | | Т | | | | teel | 1 P | <u>4</u> 0 | |
| #324.XZ | | <u> </u> | 1 | | | | Refer to log MW-17 for sample | st | n t | | |
| | | | | | | | descriptions. | 4 | me | | |
| | | | | | | | | ack | Ce | 4.0 | |
| | | | | | | ļ | | b1 | | | |
| 5 | | <u> </u> | | - | - | | | 110 | (1) | | |
| | | | | - | ┼ | $\vdash\dashv$ | | | | | |
| | | | | | ┼ | | | 2 | × | 16 . D | |
| İ | | | i – | | | | | _ | pack | 6.5 | |
| | | | | | | | | 5 | | | |
| | | | | | | | | 6 slotted steel screen | and | | |
| | | | | | | | | tt | S S | | |
| | | | <u> </u> | | | | | 120 | nd | (1) Bentonite | |
| | | | <u> </u> | - | | | | 9 8 | blend | pellets. | |
| الۍ د | | | ! | | | | | Super #6 | 1 | | |
| + | | | <u> </u> | | | | | pe | ial | | |
| | | | | | | \vdash | | Su | Speci | 11.5 | |
| | | | | | | | | | بفسق | 12.0 | |
| | | | | | | | | (] | | 12.45 | |
| | | | | | | | Augering completed at 12.45 | | | | |
| | | | | | | | feet. | | | | |
| | | | | | | | | | | | |
| ٦ ۾ | <u> </u> | | | | | | | : | | | |
| | | | | | | \neg | | | | | |
| | | | | | | \dashv | · | | | | |
| | | | | | | \dashv | | | | | |
| 1 | | | | | | | | | | 00048 | |
| Ì | | | | | | \neg | | | | 00043 | |

| N - NUMBER | R OF BLOWS TO DRIV | E " SPOON _ | <u></u> " WITH | = Ib. WT. FA | ALLING | | " PER BLOW. |
|-------------|--------------------|---------------|----------------|--------------|--------|------|-------------|
| S LOGGED BY | Dale M. Gra | mza/Geologist | | כחבנג | 1 | of 1 | |



Test Borings and Logs

East Aurora, New York 14052 • (716) 655-1717

ONITORING

| WELL | MW- | 1 | 9 | |
|------|-----|---|---|--|
| | | | | |

SURF. ELEV.

PROJECT 102nd St. Landfill well install. LOCATION Southwest corner of Olin 1E85g Buffalo Avenue, Niagara Falls, NY

CLIENT GEOTRANS/EPA and DOJ DATE STARTED 4/23/86 COMPLETED 4/23/86

| DEPTH feet | SAMPLE NO. | 0/6 | BLOWS SAME | PLER | N | REC | DESCRIPTION & CLASSIFICATION | WI | ELL | WATER TABLE & REMARKS |
|---------------|---------------|--------|---------------|------|-----|-----------|---|------------|----------|---|
| | | 41 | | 5 64 | | 25" | Extremely moist dark brown silt loam (CLAYEY-SILT) top-soil fill with 5 to 15% subangular gravel, very stiff, (ML) 0.8 | | | Mostly soil fill to 2.5 feet over slag or concrete fragments to 3.0 feet over mostly |
| 5 | 2 | 3 | 5 5 | 5 | 11 | 9" | Moist reddish brown gravelly silt loam (SANDY-SILT) fill with 15 to 40% mostly subangular dolomitic gravel, very dense, (ML) 2.5 Moist mixed tan and grayish | | e grout | soil fill to 5.0 feet over flyash and cinder fill to 8.5 feet over white sludge to likely 10.0 feet |
| | 3 | 5 | 7 2 | 2 | 9 | 18" | brown gravelly (SAND) with 15 to 40% fine to medium size angular concrete and/or slag gravel, very dense in place, loose when disturbed 3.0 | teel r | t-benton | over possibly wood to 11.0 fee over silty alluvial sediment to 11.5 feet over coarse silty al- |
| 1 0 | Z. | 4 W | | R 1 | \WI | 3" | Moist reddish brown silt loam (SANDY-SILT) fill with 5 to 15% gravel, some very fine size sand, compact, (ML) 4.5 Moist dark gray very fine | er black s | ğ | luvial sediment to 22.5 feet over water sorted and deposited mostly fine to coarse size sand, little |
| | | 50/3 | | | 9 | NR 23" | sandy loam (SILTY-SAND) fill with 5 to 15% fine to medium size gravel, some silt, compact, (SM tending towards ML) 5.0 | dia | (1) | gravel to 23.5 11.0 feet over stratified sand and gravel to |
| | 6 | -8 | , | 6 | | | Extremely moist to 6.0 feet, wet below mixed dark gray and black flyash and cinders coarse silt to gravel size with 2 rubber fragments at 7.0 feet and cardboard at | ch in | p | 31.5 feet over clayey lake sedimento 32.5 feet over loamy glacial till |
| 15 | 8 | 2 | 1 | | 2 | ò., | 7.8 feet, loose $\epsilon.5$ Extremely moist white sludge coarse silt size, very loose 11.0 | Ş | i.a | to end of boring. NR-No Recovery. REC-Recovery |
| | | 2 | 2 | 1 | 5 | 28" | See next sheet. | | Spec | Continued on sheet 2. |

N = NUMBER OF BLOWS TO DRIVE $\frac{2 \& 3}{\text{SPOON}} = \frac{12}{\text{WITH}} = \frac{140}{140}$ lb. WT. FALLING $\frac{30}{\text{PER BLOW}} = \frac{30}{\text{PER BLOW}} = \frac{30}{\text{Donald W. Owens/Soil Scientist}} = \frac{1}{\text{SHEET}} = \frac{1}{2} = \frac{3}{$



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NITORING WELL:

MW-19 continued

SURF. ELEV. _

PROJECT

102nd St. Landfill well install. LOCATION

Southwest corner of Olin

1E85g

Buffalo Avenue, Niagara Falls, NY

CLIENT GEOTRANS/EPA and DOJ DATE STARTED 4/23/86 COMPLETED 4/23/86

| | 16 | | | WS I | | | | | | | |
|---------------|---------------|----------|----------------|-------------|----------------|----------|-----|---|---------------|------|--|
| DEPTH feet | SAMPLE NO. | 0/6 | ε 12 | 12/ / 18 | 18 | N | REC | DESCRIPTION & CLASSIFICATION | WEI | LL | WATER TABLE & REMARKS |
| | 8 | | | | 4 | | | Wet black silt loam (CLAYEY- | | | Noticed strong |
| | 8 | 4 | | | | | | "SILT), stiff, with flat or- "ganic fiber oriented horizon- | | | chemical odor |
| | | | 3 | | | _ | | "tally at upper contact of | | | <pre>sample 3 - upr part of sample</pre> |
| | اوا | ₹R | | | _ | | | horizon, many fine to coarse | | | Lost stainless |
| 20 | | _ | _2 | | | 4 | 16" | isize roots, (OL-ML) | þe | | steel tape wei |
| | | _ | | 2 | | | | grades downward to Extremely moist faintly mottled | | | at 15.0 foot d |
| | | _ | | | -2 | | | dark gray silt loam (SANDY- | 1 p | | Water table at |
| | 10 | 7 | 6 | ! | | | | (SILT), loose, some fine to | ee] | | feet below sur |
| | | \dashv | | امد | | 20 | 34" | 'medium size nearly vertical | ste | | at 9 am after |
| | | | | اهن | 17 | | | roots, mottling only along some root channels, little | | 농 | augering to 10 feet late after |
| | 10 | 21 | | | | \dashv | | Seino cino cond (MI) | ack | pa | noon the previ |
| | | T | 21 | | - † | | | L clear transition to $\frac{14.0}{1}$ | b .1 | ಶ | day. |
| | 111 | VR | | | | | | Wet dark gray silt loam | Q | اها | |
| 25 | | | 3 | | | | 3 " | (SANDY-SILT) with 5% gravel, very loose to 16.0 feet, loose below. some fine size sand. | ı I | | Samples 1,3,5, 10,12, and 14 obtained with |
| | | | | 7 | | 10 | 3 | below, some fine size sand, | ncł | s nc | obtained with |
| | | | | | 7 | | | weak thinly bedded, trace | <u>-</u> - | b16 | 3 ft. long split |
| | 12 | 9 | | | | _ | | brown very fine vertical roots, | 7 | | 26.5 samples 2 |
| | | _ | 7 | 9 | : | 16 | 14" | (ML)-grades downward to 22.5- | _ | ן ש | 7,9,11, a 13 were o |
| | | <u>i</u> | _ | 7 | | | | Wet dark gray loamy sand (SAND) with 5 to 15% mostly | ted screen | pec | tained wi |
| | | - | | | 21 | \dashv | | rounded gravel, fine to | _ | Sp | 2" OD-2 f |
| | -12 | 34 | 30 | | -+ | | | coarse size sand, trace silt, | | | long spli |
| | 13 | 2 | - 1 | | | \dashv | | | steel | | spoon. |
| الاد | | | _ | | \dashv | \dashv | | (SM)-clear transition to 23.5 - | # 6 55 | | Sample 13 |
| | | | $\overline{}$ | 16 | : | 31 | 3 " | Wet dark gray very gravelly | er de | | contamina |
| | | | | | 2 | | | loamy sand (SAND) with 40 to 60% mostly rounded gravel, | Super #6 | | with NAPL based on |
| | 14 | 3 | | | | | | | S ts | | 31.5 smell and |
| | | | 3 | | | | 20" | trace silt, few broken white | | | <u>32.</u> 0 visual ev |
| | | 1 | | 1 | | 4 | 20" | (Shear tragments, beretarrea, | re_ | ĺ | dence. |
| • | | 1 | _ | | 3 | | | <pre>(compact, loose when disturbed) (SP,GW)</pre> | ء نے، | c s | |
| | 14 | 4 | | | | _ | | $\frac{1}{1}$ clear transition to $\frac{31.5}{1}$ | Benton: | re | |
| | | - | 4 | \dashv | _ | _ | | | len o | Ta. | O |
| | | | | | | | | See next sheet. | <u> </u> | | 34 5 Continued |

N = NUMBER OF BLOWS TO DRIVE 2 5 3 " SPOON 12 " WITH 140 Ib. WT. FALLING _



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DNITORING

WELL MW-19 continued

SURF. ELEV.

PROJECT 102nd St. Landfill well install. LOCATION Southwest corner of Olin
1E85g Buffalo Avenue, Niagara Falls, NY

CLIENT GEOTRANS/EPA and DOJ DATE STARTED 4/23/86 COMPLETED 4/23/86

| 0.000 | | | 2 87 | OWS AMP | | | | DESCRIPTION & CLASSIFICATION | · MIATER TABLE & RELIA |
|---------------|-----------|----------|---------|------------|-------|---|-----------------------|---|---|
| DEPTH feet | SAR NO | 6 | ر ا | 12/ | 18/24 | N | | DESCRIPTION & CLASSIFICATION | WATER TABLE & REMARKS |
| | | | | | | | • | Wet reddish brown (SILTY-CLAY), firm, thinly laminated with very thin coarse silt | Sample 14 is highly contaminated with an intense odor and brown |
| | | | | 1 | | ļ | | | liquid. |
| 20 | | | | | | | | Extremely moist reddish brown gravelly loam (SANDY-SILT) with 15 to 40% mostly sub- | |
| | | | | | | | | angular dolomitic gravel, some fine to coarse size sand, loose, massive soil | |
| | | | | | - | | | structure, (ML) 34.5 | |
| | | | | | | | | Augered to 34.5 feet. | Water table 25 hours after sampling completion at 15.0 feet |
| 25 | | | | | | | | | below surface. |
| | | | | _ | | | | | |
| | | | | | | | | | WR-Sampler penetrati with weight of ro |
| | | | | | | | | | only. WH-Sampler penetrati |
| | | | | | | | | | with weight of ro |
| | | | | <u> </u> | | | | | and hammer. |
| | | | | | | | $\parallel \parallel$ | | |
| 3o | | | | | | | | | |
| | | - | | <u> </u> | | | | | |
| | | <u> </u> | | | | _ | H | | |
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ONITORING

MW-20WELL

SURF. ELEV.

PROJECT

102nd St. Landfill well install.

LOCATION Adjacent to MW-19, 4.0 feet

1E85g

Buffalo Avenue, Niagara Falls, NY

to the north

| er besker: | CLIENT | | GE | OTR | AN | S/E | PA | and DOJ DATE STARTED 4/2 | 5/86 COMPLETED 4/25/86 |
|------------|----------------|---------------|--|-----------|--|------------------|--|------------------------------|---|
| | DEPTH | SAMPLE NO. | U/ | BLC S/ | OWS AMPL | ON ER | N | DESCRIPTION & CLASSIFICATION | WELL WATER TABLE & REMARKS |
| | feet | 8 | 6 | /12 | /18 | 24 | " | | |
| | | | <u> </u> | | | - | <u> </u> | | t e |
| | | | <u> </u> | <u> </u> | - | <u> </u> | <u> </u> | | |
| , | * | | <u> </u> | | <u> </u> | <u> </u> | - | Drilling without sampling to | tee tree |
| | | | <u> </u> | | | | | 12.0 foot depth. | st st |
| - | | | | | | | | <u>-</u> | ack steel lpe nt-bentonit grout |
| | | | <u> </u> | | | <u> </u> | | | black Dipe Cament- |
| | | | i | | | | | | |
| | | | - | <u> </u> | | 1 | <u> </u> | Refer to log MW-19 for des- | 01 |
| | | - | | | <u> </u> | <u> </u> | 1 | cription of soil fill and | \(\(\lambda\) \(\lambda\) |
| - | 5_ | <u></u> | - | | | | } | waste. | 2 - 5-0 |
| | | _ | | | <u> </u> | | | | 1 4 |
| | | | - | | <u> </u> | | | • | sand pack |
| | | | <u> </u> | | | | | | |
| | | | | | | | | | p |
| e===== | and the second | | | | | | | | slotted teel same pend sand pellets. |
| | | | | | | | | | on a (1) Bentonite |
| | | | | | | | | • | ols beliefs. |
| | | | | | | | | · | 9 9 9 |
| | ם. נ | | | | | | | | Super #6 slott stainless steel s Special blend s 10 10 10 10 10 10 10 10 10 10 10 10 10 |
| - | | | | | | | | | |
| | | | | | | | | | Sul Sul |
| | | | | | | | | | <u>v11.5</u> |
| | | | | | | | | | (1) 12.0 |
| | | | | | | | | | |
| | | | | | | | | Augering completed at 12.0 | Water table at 10.0 |
| | | | | | | | | feet. | feet below surface at |
| | | | | | | |] | | completion. |
| | | | | | | | | | |
| | 15 | | | - | | į | | | |
| | | | | - | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | 000493 |
| | | | | | | | | | |

| N = NUMBER OF BLOWS TO DRIVE | " SPOON | <u> "</u> with <u></u> | _ Ib. WT. FALLING | | " PER BLOW |
|------------------------------|---------|------------------------|-------------------|--|------------|
|------------------------------|---------|------------------------|-------------------|--|------------|



Test Borings and Logs

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(sty

ONITORING WELL....

MW-21

SURF. ELEV.

Continued on sheet 1A.

| PROJECT | _102nd_ | | | 11 well install. LOCATION 12 it | | |
|------------------|--------------------------|--|-----|---|-------------------------|-----------------------------|
| 1E85g | Buffal | o Ave | one | Niagara Falls, NYner o | | |
| CLIENT . | GEOTRA | NS/EP | anc | DOJ DATE STARTED 4/ | 22/86 | COMPLETED <u>4/22/86</u> |
| | <u>.</u> <u></u> <u></u> | | | | | |
| N. | BTOM2 | | | | T | |
| SO STELLY STATES | 0 6 /112/ | 77 | REC | DESCRIPTION & CLASSIFICATION | WELL | WATER TABLE & REMARKS |
| feet & | 6 /12 /18 | 8 10 24 N | | | 0, | |
| 1 | 3 | | | Extremely moist dark brown | it e | m |
| | 7 | | 1 | silt loam (SANDY-SILT) top- | اماد | Topsoil fill |
| | 8 | 15 | 27" | \soil fill, compact, with abun | pil nto | to 0.5 feet |
| | | | | \dant fine roots, (ML) 0.5 | | over clayey soil fill to |
| | | 15 | | Moist reddish brown silty cla | A 6 100 | 1.5 feet ove: |
| 1 | 3 | <u> </u> | | \setminus loam (CLAYEY-SILT) fill, very | | mostly flyasi |
| | 5 | | | \stiff, with large size root | ck s emen | and cinders t |
| 2 | 4 | | | material, (ML-CL) 1.5 | + 5 5 | 11.8 feet |
| | 5 | | 5" | Moist black flyash and cinder | \$ m 10 | 4.0 over fine |
| | 9 | 14 | 5 " | , | P1 | silty alluvia |
| 5 | | 4 | | noticed glass fragment at 2.0 foot depth, some rubber piece | | sediment to |
| 3 | 4 | | | at 2.3 foot depth, noticed | l lav | . 12.5 feet ov∈ |
| | 9 | | | light brown flyash between 2. | | clayey lake |
| | 5 | 114 | 17" | and 2.8 feet, compact, loose | Ĭ∼ | 6.0 sediment to |
| | - | 13 | | when disturbed | × | £ 5 end of boring |
| | | 13 | | 1 grades downward to3:0 | screen pack | |
| 3 | 3 | ! - ! | | Extremely moist black flyash | 1 4 5 | { sampres 1,5, |
| | 2 | | | land cinders, coarse silt to | 14 15 | and 5 obtaine with 3" OD-3' |
| 4 | 1 | | , | coarse sand size, little to | otte eel s | l with 3 Ob-3 |
| | 1 | | 4 * | some medium size gravel, com- | steel steel d san | long split spoon. |
| | 1 | 2 | 4 | 'bact' roose mueu distanbed' f | s st end | Samples 2 and |
| 10 | | WH | | <pre>'grades downward to</pre> | 100 | 4 - 2 - 3 - 3 |
| | 2 | | | Wet mixed tan and light brown | 1e. | with 2" OD-2! |
| . 5 | | | j | flyash and cinders, fine sand | er in al | |
| | 2 3 | - 5 | 25° | to gravel size cinders, loose | Q. fd | |
| | | | | 8.0 | 8 9 | 11.5 |
| | | 4 | | Wet mixed tan and light brown | Sp | 12.0 WH- Sampler |
| 5 | 8 | j j | | cinders, coarse silt to coars | ė | penetration |
| | F, | | | sand size, noticed glass frag | + (1) | han with |
| | | | | ment at 8.3 feet, some small | · · · | weight of |
| | | | | Iwood fragments at 8.5 feet, | } | . rods and |
| | | | - | lone coarse size gravel piece | | hammer. |
| 15 | | | | lat 9.0 foot depth, very loose | ſ | |
| | | | | tends to liquify when dis- | (1) B | entonite pellets. |
| | | | | turbed below 9.0 foot depth grades downward to- 10.0 | 1.1 - + - | |
| | | | | grades downward to- | | level at 9.0 fee |
| | | | | | pleti | surface at con- |
| | | | | See next sheet. | prefi | 011. |

" SPOON 12 " WITH 140 Ib. WT. FALLING

N = NUMBER OF BLOWS TO DRIVE .



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NITORING

WELL MW-21 continued

SURF. ELEV.

PROJECT 1E85a 102nd St. Landfill well install. LOCATION 12 ft east of northeast cor-Buffalo Avenue Niagara Falls. NY ner of spoil cell.

CLIENT

GEOTRANS/EPA and DOJ DATE STARTED 4/22/86 COMPLETED 4/22/86

DEPTH TO BLOWS ON SAMPLER DESCRIPTION & CLASSIFICATION WATER TABLE & REMARKS Wet black flyash and cinders, coarse silt to gravel size, noticed iridescent sheen between 11.3 and 11.8 foot depth, loose r - -grades downward to- $\frac{11.8}{}$ Extremely moist dark gray silt loam (CLAYEY-SILT) with abundant fine size roots oriented vertically, some | horizontally, noticed black leachate on roots to 12.1 feet, firm, (ML) Extremely moist olive gray silty clay loam (CLAYEY-SILT) with some fine size roots oriented vertically, firm weak thinly laminated with very thin coarse silt lenses, 13.0 (ML-CL) Boring completed at 13.0 feet. 000495

N = NUMBER OF BLOWS TO DRIVE 2 "SPOON 12 "WITH 140 Ib. WT. FALLING 30 "PER BLOW.



GEOTRANS/EPA and DOJ

DIMENSIONS, INC.

Test Borings and Logs

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NITORING WELL

MW-22

SURF. ELEV. _

1E85g CLIENT

PROJECT 102nd St. Landfill well install. LOCATION Approx.

40 ft. from rip rap

existing Bore hole 4
DATE STARTED 4/25/86 COMPLETED 4/25/86

| DEPTH | SAMFIE NO. | | | OWS AMPL | | | REC | DESCRIPTION & CLASSIFICATION | WE | LL | WATER TABLE & REMARKS |
|---------|---------------|----------|-----------|-------------|----------|----|------|---|-------|--|------------------------------------|
| feet | SA X | 6 | 6/12 | 1 / | 15 24 | ĸ | | | | | |
| | 1 | 30 | | | | | | Extremely moist brown silty | | -0 | Topsoil to |
| | | | 11 | | | 77 | 26" | clay loam (CLAYEY-SILT) top- | | ent-bento | feet over f |
| | | | | 16 | | 27 | 20 | () 5 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 | | Sel | silty soil fill with s |
| | | | | | 10 | |] | material, hard (ML) 0.5 | | 17.3 | gravel to l |
| | 1 | 18 | | | | | | Extremely moist mixed brown and reddish brown, gravelly | | n L | feet over |
| | | | 1 0 | | | | 1 | silty clay loam (CLAYEY-SILT) | | 1 = + | coarse silt |
| | 2 | 5 | - <u></u> | | | | j | I fill with 15 to 40% mostly | pe | Ce | |
| | <u> </u> | 1 | 6 | | | | 1 | subangular gravel, noticed | pip | | assorted gr |
| | | <u> </u> | 0 | _ | | 11 | 26" | several red brick fragments | 1 | (1 | 4.2 vel size |
| 5 | | _ | | 5 | _ | | 1 | lat 0.8 foot depth, very | 0 | | debris to 5 |
| | _ | | | | 4 | | | stiff, (ML) | te | | feet over f |
| • | 2 | 8 | | - | | | _ | - grades downward to- | S | | silty fill |
| | | | 7 | <u> </u> | | | - | Moist becoming extremely | ack | pack | 7.5 feet ov |
| | 3 | 4 | | <u> </u> | | | ļ | moist below 3.0 feet dark | la | pa | very fine sandy fill |
| | | | 8 | | | 19 | 30 " | gray silt loam (SANDY-SILT) fill with 5 to 15% mostly | b1 | | 8.0 feet ov |
| | | | | <u> </u> | | | | subangular gravel, noticed | 10 | and | mostly flya |
| | | | | | 12 | | | wood fragment at 3.1 foot | | 3 | and cinders |
| | 3 | 10 | | | | |] | depth, one (1) cobble size | 2. | ַס ב | l ' |
| j | | | Q | | | |] | cement piece at 3.5 foot | | end | fine silty |
| | 4 | 5 | | | | | } | depth, some very fine size | | b16 | alluvial se |
| i i | | | 4 | | | | | sand, compact, (ML) 5.8 | (2) | | ments to er |
| | | | | ٦ | | 7 | 22" | Extremely moist gray silty | | ש | of boring. |
| | | | | 5 | 5 | | | clay loam (CLAYEY-SILT) fill, | | ci | 11 0 |
| Ì | | 7 | | | 2 | | } | noticed very fine size roots | - | C. | 11.0(1) Bentoni |
| | 4 | _/ | 10 | | | | | noriented vertically and hori- | | | 11.6 pellets |
| ļ | | | 10 | | | | | zontally, stiff, weak thinly | (| 1)_ | 12.0 (2) Super |
| | | | | | | | | laminated with very thin coarse silt lenses, (ML-CL) | | | slotted |
| | | | | | | | | | | | stainle |
| | | | | | | | | 1 grades downward to - 7.5 | | | steel |
| | | | | | | | | Extremely moist olive gray | | | screen. |
| | | | | | | | | very fine sandy loam (SILTY- | Te1 = | _ | - 10.00 -+ 11 0 |
| 15 | | | | | | | | (SAND) fill with fine size | l . | | r level at 11.0 below surface a |
| İ | I | İ | | İ | İ | | | brown roots oriented hori- | | | letion. |
| İ | i | | | | | | | zontally, compact, (SM) | | لـ لــــــــــــــــــــــــــــــــــ | re ration. |
| ł | | | | | | | | $-$ -grades downward to $ \frac{8.0}{1}$ | | | |
| | | | | | | { | | | | | 000496 |
| · · · • | ! | | | | | | | See next sheet. | • | | 000400 |

N = NUMBER OF BLOWS TO DRIVE 3 "SPOON 12 "WITH 140 Ib. WT. FALLING 30 "PER BLOW.



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MONITORING

15

| WELL <u>MW-22</u> conti | inued | SURF. ELEV. |
|---|--|-----------------------|
| PROJECT 102nd St. Land 1E85g <u>Buffalo Avenue</u> CLIENT <u>GEOTRANS/EPA</u> a | existing | ft northwest of |
| DEPTH BLOWS ON SAMPLER 15 / 16 / 12 / 16 / 16 / 12 / 16 / 18 | DESCRIPTION & CLASSIFICATION | WATER TABLE & REMARKS |
| | Wet black flyash and cinders, coarse silt to coarse sand size cinders, noticed glass fragments from 8.1 to 8.3 foot depth, several gravel size wood pieces at 8.5 foot depth, compact, loose when disturbed grades downward to grades downward to grades downward to grades downward to grades, noticed glass fragments between 9.5 and 10.3 foot depths, loose grades downward to go grades downward to go grad | |

Boring completed at 12.0 feet.

lenses, (ML-CL)

compact, weak thinly laminated with very thin coarse silt

12.0

000497

| N = NUMBER OF BLOWS TO DRIVE | 3 "SPOON 12 "V | WITH 140 Ib. WT. FALLING | 30 " PER BLOW. |
|---------------------------------|-----------------------|--------------------------|----------------|
| bsLOGGED BY <u>Dale M. Gran</u> | <u>ıza/Geolog</u> ist | SHEET 1A | OF1A |

DOCUMENT OUT

| NAME | TITLE | DATE OUT | DATE IN |
|--------------|-------------------------------------|-------------|------------|
| Rebert Baker | GEOLOGIC AND WELL CONSTRUCTION LOGS | 3/1/88 | |
| | DATED: May 15, 1986 | | |
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